

Citation: Bennett, R. J., Barr, C., Cortis, A., Eikelboom, R. H., Ferguson, M., Gerace, D., ... & Bellekom, S. (2021). Audiological approaches to address the psychosocial needs of adults with hearing loss: perceived benefit and likelihood of use. *International Journal of Audiology*, 1-8.

Journal: International Journal of Audiology

Special supplement: Hearing health in the broader context of healthy living: changing the narrative

Title: Audiological approaches to address the psychosocial needs of adults with hearing loss: Perceived benefit and likelihood of use

Authors & affiliations:

- ✓ Rebecca J Bennett: Ear Science Institute Australia, 1 Salvado Road, Subiaco, WA, Australia, 6008; The University of Western Australia, Crawley, WA, Australia; School of Health and Rehabilitation Sciences, The University of Queensland, Australia
- ✓ Caitlin Barr: Better Hearing Australia (VIC), Suite 1, Level 2/517 St Kilda Rd, Melbourne, VIC, Australia 3004
- ✓ Alex Cortis: Ear Science Institute Australia, 1 Salvado Road, Subiaco, WA, Australia, 6008; The University of Western Australia, Crawley, WA, Australia;
- ✓ Robert H Eikelboom: Ear Science Institute Australia, Subiaco, WA, Australia, 6008; The University of Western Australia, Crawley, WA, Australia; Department of Speech Language Pathology and Audiology, University of Pretoria, South Africa.
- ✓ Melanie Ferguson: National Acoustic Laboratories, 16 University Avenue, Macquarie University, Sydney, New South Wales, Australia
- ✓ Daniel Gerace: Ear Science Institute Australia, 1 Salvado Road, Subiaco, WA, Australia, 6008; The University of Western Australia, Crawley, WA, Australia;
- ✓ Eithne Heffernan: Discipline of General Practice, Clinical Science Institute, School of Medicine, National University of Ireland Galway, University Road, Galway, H91 TK33, Ireland
- ✓ Louise Hickson: School of Health and Rehabilitation Sciences, The University of Queensland, Australia

- ✓ Lisette van Leeuwen: Amsterdam UMC, Vrije Universiteit Amsterdam, Department of Otolaryngology-Head and Neck Surgery, Ear & Hearing,, Amsterdam Public Health research institute, De Boelelaan 1117, Amsterdam, Netherlands.
- ✓ Joseph Montano: Weill Cornell Medical College, New York, NY 10021
- ✓ Jill E. Preminger: University of Louisville School of Medicine, Program in Audiology, Louisville, Kentucky, US; San Diego State University, Speech, Language and Hearing Sciences, California, US
- ✓ Marieke Pronk: Amsterdam UMC, Vrije Universiteit Amsterdam, Otolaryngology - Head and Neck Surgery, Ear & Hearing, Amsterdam Public Health Research Institute, de Boelelaan 1117, Amsterdam, the Netherlands
- ✓ Gabrielle H. Saunders: Manchester Centre for Audiology and Deafness, School of Health Sciences, University of Manchester, Manchester, UK
- ✓ Gurjit Singh: Senior Research Audiologist, Phonak Canada; Adjunct Professor, Department of Psychology, Ryerson University; Adjunct Lecturer, Department of Speech-Language Pathology, University of Toronto
- ✓ Barbra Timmer: School of Health and Rehabilitation Sciences, The University of Queensland, St Lucia/Brisbane, QLD, Australia; Sonova AG, Staefa, Switzerland
- ✓ Barbara Weinstein: City University of New York, New York
- ✓ Sandra Bellekom: Ear Science Institute Australia, 1 Salvado Road, Subiaco, WA, Australia, 6008; The University of Western Australia, Crawley, WA, Australia

Corresponding author: Dr Rebecca J Bennett, Ear Science Institute Australia, Suite 1, Level 2, 1 Salvado Road, Subiaco, WA 6008, Australia. Tel: +61 8 6380 4900. Fax: +61 8 6380 4901. Email: bec.bennett@earsceince.org.au

Key words: hearing healthcare professional, audiologist, psychosocial, significant others, support groups, empowerment, emotional support, counselling, self-management, hearing loss.

ABSTRACT

Objective: To explore the perceived benefit and likely implementation of approaches used by audiologists to address their adult clients' psychosocial needs related to hearing loss.

Design: An online survey wherein participants rated their perceived benefit and also their likely use of 66 clinical approaches (divided over seven themes) that aim to address psychosocial needs related to hearing loss.

Study sample: A sample of 52 Australian adults with hearing loss, and an international sample of 19 audiologists.

Results: Overall, participants rated all of the approaches highly on both *benefit* and *likelihood of use*; the highest ranked theme was *Providing Emotional Support*. Cohort comparisons showed that audiologists ranked the approaches significantly higher than did adults with hearing loss. Overall, participants ranked the themes higher on *benefit* than on the *likelihood to use* scales.

Conclusions: Adults with hearing loss and audiologists recognise the importance of approaches that address the psychosocial impacts of hearing loss in audiological rehabilitation. However, both groups placed slightly greater value on the internal-based approaches (the clients own emotional response, empowerment, and responsibility), and slightly less emphasis on the external-based approaches (being supported by communication partners, support groups or other health professionals).

INTRODUCTION

Hearing loss is an important and growing global public health concern (Wilson et al, 2017; Mathers et al, 2000). The negative impacts of the condition can concern a range of life domains. Vas and colleagues (2017) have identified the following three domains of hearing loss, as reported by adults with hearing loss and their communication partners: 1) hearing and communication, 2) behaviour and social interaction, and 3) emotions, identity, and psychological well-being. The combined effects of the latter two are often termed 'psychosocial', describing the emotional, psychological, or environmental factors that influence a persons' physical, mental and functional wellness. Psychosocial impacts of

hearing loss include feelings of isolation, loneliness, inferiority, embarrassment, and perceived reliance on significant others (Barker et al, 2017; Heffernan et al, 2016; Vas et al, 2017; Pronk et al, 2011), and may include symptoms of anxiety or depression (Jayakody et al, 2018; Keidser & Seeto, 2017; Lawrence et al, 2018). Low levels of psychosocial well-being can be distressing for individuals and can have a detrimental effect on a wide range of physical and mental functions including sleep (Cacioppo et al, 2002), immune responses (Hawkey & Cacioppo, 2003), cardiovascular disease (McDade et al, 2006), dietary habits (Locher et al, 2005), physical activity (Kharicha et al, 2007), depression (Kawachi & Berkman, 2001), cognitive decline and dementia (Cacioppo & Hawkey, 2009; Gow et al, 2007; Wilson et al, 2007), and increased mortality (Shiovitz-Ezra & Ayalon, 2010). In addition, poor psychosocial well-being may negatively impact a client's utilisation of and success with healthcare (Howell et al, 2007), including, audiology services (Laird et al, 2020).

Clinical guidelines emphasize that audiologists should play a role in addressing the impact of hearing loss on psychosocial function (American Speech-Language-Hearing Association, 2004; Audiology Australia, 2013; British Society of Audiology, 2016); however the guidelines provide no specific instruction as to how to do this. Our recent international study (n = 65 audiologists) identified 93 different approaches that can be employed by audiologists to address their clients' psychosocial needs associated with hearing loss (Bennett et al, 2020a). Despite these encouraging findings, other data suggest that psychosocial support is infrequently provided in audiology clinical practices (Bennett et al, 2020b; Ekberg et al, 2014; Grenness et al, 2015). Moreover, there is little point in audiologists using techniques or offering psychosocial support if the clients do not see the benefit in these techniques and/or are not likely to accept or act upon the psychosocial techniques/support services delivered by the audiologist. The aim of the current study was to understand this mismatch between approaches identified and their use by examining the utilisation and perceived benefit of the clinical approaches identified in our earlier study. We achieved this by surveying adults with hearing loss and audiologists, to explore the perceived *benefit* and *likely use* of clinical approaches applied in the audiology setting to address the psychosocial impacts of hearing loss. We analysed this separately for the two participant groups, in order to explore any differences in their views.

METHODS

This study is the second part to a two-part project using concept mapping techniques to explore the clinical approaches taken by audiologists to address their adult clients' psychosocial needs related to hearing loss. Concept mapping methodology is an established participatory mixed methods approach that combines qualitative techniques to data collection with subsequent quantitative analyses. These produce visual maps of how people view a particular topic (Trochim & Kane, 2005). Participants generate data for analysis by engaging in three activities: a) brainstorming, b) grouping, and c) rating. In part one of this project 65 audiologists from different countries were recruited and asked to complete the brainstorming and grouping activities. They generated a list of 93 approaches they said were used by audiologists to address their clients' psychosocial needs associated with hearing loss, and which were subsequently grouped across seven themes (Bennett et al, 2020a). In part two of this project (reported here) the audiologists who participated in part one were included, as well as a new sample of adults with hearing loss, so that both groups could complete the rating activity.

Synopsis: Adults with hearing loss and audiologists participated. Via an electronic survey, both participant groups rated the *perceived benefit of* and *perceived likelihood of use* of the approaches identified earlier by the audiologists, to address patients' psychosocial needs arising from their hearing loss.

Participants

Australian adults with hearing loss were recruited from a hearing clinic in Perth, Western Australia. All clients on the clinic database who were aged 18 years or older, who had indicated a willingness to be contacted for research purposes (indicated by opting in on the client information form at their most recent appointment at the clinic), and who had attended the clinic in the past three years were identified as potential participants. No inclusion or exclusion criteria were placed on demographic factors, hearing sensitivity, or duration or use of hearing amplification devices, to ensure a heterogeneous mix. A pool of 200 of these individuals were selected using a random number generator in Microsoft Excel and were sent an email inviting them to complete the survey. Fifty-two (response rate of 26%), agreed to take part in this second part of the study.

All audiologists (n=65) who had participated in our previous study (Bennett et al, 2020a) were invited to participate in this second study via email. These individuals were based in Australia, Canada, China, Ireland, UK, USA, Switzerland, and the Netherlands. Nineteen audiologists agreed to participate in this rating activity (response rate 29.2%).

Participant characteristics are described in Table 1.

Table 1. Participant characteristics.

Characteristics	Adults with hearing loss (n=52)	Audiologists (n=19)
Age (years)		
20-39	0	10
40-59	10	5
60-69	14	4
≥70	28	0
Gender, female	22 (42%)	16 (84%)
Years of hearing aid ownership (years)		
0-2	18	N/A
2-5	14	
6-10	5	
11-15	7	
≥16	8	
Daily hours of hearing aid use		
More than 8 hours a day	31	N/A
4-8 hours a day	6	
1-4 hours a day	9	
Less than 1 hour a day	3	
Never	3	
Years of clinical experience (years)		
0-5	N/A	4
6-10		2
11-15		2
16-20		4
≥21		7

Note: N/A: not applicable

Survey development

The audiologists in Bennett et al. (2020a) generated a list of 93 clinical approaches that they perceived audiologists to be using to address the psychosocial needs of adults with hearing loss. Following the use of concept mapping techniques, these approaches were grouped into the following seven themes, or types of approaches: (1) *Including Communication Partners*, (2) *Promoting Client Responsibility*, (3) *Use of Strategies and Training to Personalise the Rehabilitation Program*, (4) *Facilitating Peer and Other Professional Support*, (5) *Improving Social Engagement with Technology*, (6) *Providing Emotional Support*, and (7) *Client Empowerment*.

Since we anticipated that having participants rate all 93 approaches for *perceived benefit* and *likelihood of use* could be too burdensome, we decided to reduce the number by merging items that described similar approaches. Approaches were only merged if they were from within the same theme, not from different themes. For example, the approach "*Discussing the association between hearing loss, social decline, and isolation*" was merged with "*Asking questions and talking about how hearing loss impacts on the social and emotional aspects of the client's life; enabling them to better understand their condition, take ownership of it, and take the steps needed to become more socially connected*" to become a single item that read as Q33. *The audiologist asks questions and talks about how hearing loss can impact on the social and emotional aspects of the client's life; enabling them to better understand their condition, take ownership of it, and take the steps needed to become more socially connected*. Similarly, the statement "*Listening to the client - sometimes they just need to talk*" was merged with "*Giving the client time to talk, and listening to what they say*" to become Q1. *The audiologist gives the client time to talk, and listens to what they say*. No new statements were added to the list of approaches.

We anticipated that some of the participating adults with hearing loss may not have been as familiar with the approaches as the audiologists who generated the original list. Thus, some statements were rephrased for ease of understanding, and a description/explanation for some items was included. For example, a definition was provided for the term "*hearing therapy*" as in the following example: Q29. *The audiologist refers clients to hearing therapy*

(a counselling and support service for people living with hearing loss). The final survey included 66 items across the seven themes (see Appendix 1 for the complete survey).

The survey included two response scales evaluating (i) *perceived benefit* and (ii) *perceived likelihood of using* each approach on a 5-point Likert scale (1 = Extremely Unlikely to 5 = Extremely Likely). Participant groups were asked the same two questions, with the wording of the *perceived likelihood of use* question slightly altered to reflect whether they were an adult with a hearing loss (receiving psychosocial services) or an audiologist (recommending/delivering psychosocial approaches).

(i) *Perceived benefit* of each item was measured by asking participants "How likely is it that each of the approaches will help people with a hearing loss improve their social and emotional well-being?"

(ii) *Perceived likelihood of use* was measured by asking:

- People with hearing loss: "How likely are you to accept each of the approaches below? If your Audiologist used these approaches with you, or if they recommended these approaches to you, how likely are you to take up the advice and follow through with it?"
- Audiologists: "How likely are you to use each of the approaches below? As an audiologist, how likely are you to implement or recommend each of the below approaches to your clients?"

Prior to data collection the survey was pilot tested on five audiologists and five older adults with hearing loss (all recruited from the Perth-based partner clinic) in order to ensure that the survey was appropriate and acceptable for the intended population. Pilot testing was completed using a printed version of the survey. Pilot participants were asked to provide the research team with feedback on how long the survey took to complete and how easy/difficult the wording was to understand. All ten participants indicated that the survey was acceptable, easy to understand, and took between 7 to 20 minutes to complete. No changes to the survey were recommended.

Procedure

Ethical approval for this study was granted by the Human Research Ethics Office of The University of Western Australia.

Potential participants were sent an email about the study that included a link to the online survey. The survey was completed within Qualtrics, and in order to reduce the likelihood of participant fatigue/burden, participants had the option to complete the survey over different sessions. Participants were given six weeks to complete the survey. A reminder email was sent to the audiologist cohort at five weeks if the survey had not yet been completed. No reminders were sent to the adults with hearing loss participant group.

Data analysis. Data was stored and analysed using Microsoft Excel and SPSS Statistics (version 21.0, Armonk, NY: IBM Corp). Means and Standard Deviations (SDs) for each of the themes and individual items were tabulated for the two participant groups separately (i.e., distinguishing between adults with hearing loss and audiologists).

It was deemed necessary to first examine the reliability of the grouping structure, as there were fewer items in the survey here than approaches identified in the initial study (66 versus 93). This was achieved by determining the internal consistency (Cronbach's alpha) for each of the 7 item groups belonging to the themes, separately for each participant group and each rating question. These are shown in Appendix 2. There was high internal consistency reliability for all themes and for both rating questions. Specifically, all of the alpha values were >0.6 (i.e. acceptable reliability), with 20 of the 28 scores being >0.8 (i.e. very good reliability; Gliem & Gliem, 2003).

Data were analysed in three ways. First, the differences in mean rating scores (for perceived benefit and likelihood of use separately) were compared between the participant groups. Second, the rank order of the themes were determined (with the participant groups combined), in order to determine which theme, if any, were ranked higher than others in terms of *perceived benefit*, or *likelihood of use*. Third, the differences in mean rating scores between the perceived *benefit* and *likelihood of use* were compared (with the participant groups evaluated separately). In all three cases, independent sample t-tests were used. Due

to the large number of t-tests we applied a Bonferroni corrected *p-value*, calculated by dividing 0.05 by the number of t-tests performed within each analysis.

RESULTS

Table 2 shows the mean scores (SDs) for each theme's rating scale and for each participant group, along with statistical comparisons between groups (the individual item rating scores are presented in Appendix 1). Overall, both participant groups rated all approaches relatively positively (i.e., all mean scores ≥ 3) on *perceived benefit* and *perceived likelihood of use*. Audiologists ranked the approaches significantly higher on *perceived benefit* than did adults with hearing loss ($p < 0.007$), with the exception of *Promoting Client Responsibility* ($p = 0.034$), for which no statistically significant group difference was found. Mean differences for the six statistically differing scales between the participant group ranged between 0.47 and 0.78 (mean = 0.62, SD = 0.13).

Although visual inspection of the mean ratings for each of the themes appear to suggest a rank order, there was no statistically significant difference between the mean ratings when compared between themes (Appendix 3 & 4), with the exception of two themes. The two themes Providing Emotional Support and Promoting Client Responsibility were ranked significantly higher than the other themes by participants on both rating scales, *perceived benefit* and *likelihood of use* (Appendix 3 and 4).

We observed the overall trend that both for the adults with hearing loss and the audiologists benefit was generally rated higher than likelihood of use (Figure 1), but these differed only statistically significantly for four themes for the audiologists, and one for the adults with hearing loss. For the adults with hearing loss participant group, the theme Facilitating Peer and Other Professional Support was rated to be of higher *perceived benefit* than *likelihood of use* ($p\text{-value} < 0.005$). For the audiologist participant group, the seven themes Communication Partners, Use of Strategies and Training to Personalise the Rehabilitation Program, Client Empowerment, and Facilitating Peer and Other Professional Support were rated to be of higher *benefit* than *likelihood of use* ($p\text{-values} < 0.004$). Although it can be debated if the two constructs (perceived benefit and use) may be compared directly (see Limitations), we speculate that the differences may indicate that particular strategies that may be viewed as rather beneficial may not be viewed as put into clinical

Figure 1. Comparison *perceived benefit* against *perceived likelihood of use* for participant mean rating scores for each theme (participant groups analysed separately). Significant differences denoted by *, calculated using independent t-tests with Bonferroni corrected *p*-values below 0.007 indicating significance.

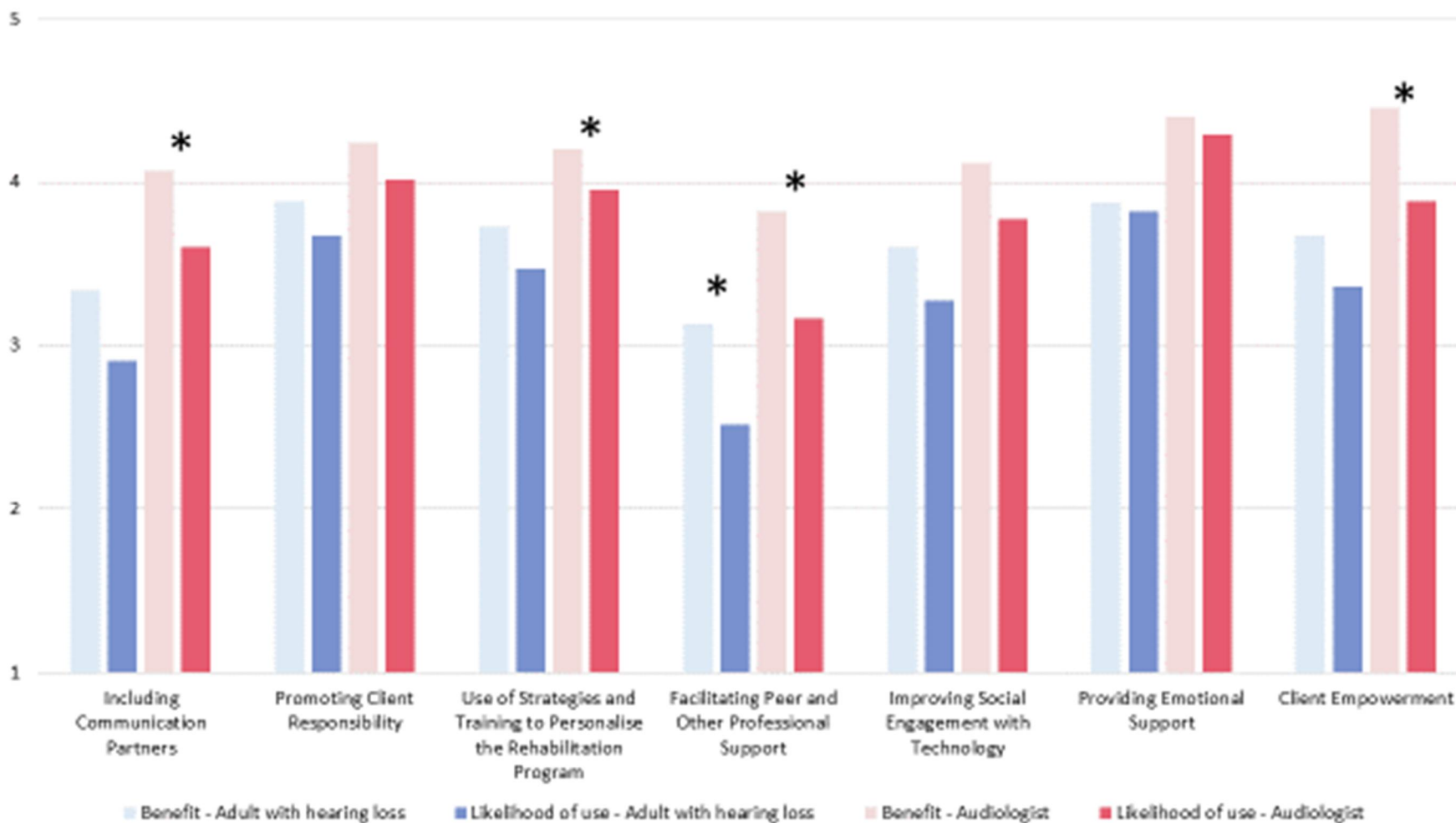


Table 2. Theme mean (SD) scores, by participant type, and comparison between the participant groups means using independent t-tests with Bonferroni corrected *p*-values below 0.007 indicating statistical significance. The significant values are bolded. Mean scores could potentially range from 1-5, with higher mean scores indicating greater perceived benefit or likelihood of use of the approaches.

Themes	Perceived benefit of the approaches						Perceived likelihood of use of the approaches					
	Adults with hearing loss Mean (SD)	Audiologists Mean (SD)	Mean difference	Difference between means			Adults with hearing loss Mean (SD)	Audiologists Mean (SD)	Mean difference	Difference between means		
				t	df	<i>p</i> -value				t	df	<i>p</i> -value
Including Communication Partners (6 items)	3.34 (0.99)	4.07 (0.49)	0.73	-4.11	63.09	<0.001	2.91 (1.09)	3.60 (1.11)	0.69	-2.15	26.37	0.041
Promoting Client Responsibility (5 items)	3.88 (0.76)	4.24 (0.56)	0.36	-2.19	43.04	0.034	3.67 (0.90)	4.01 (0.66)	0.34	-1.6	36.21	0.119
Use of Strategies and Training to Personalise the Rehabilitation Program (13 items)	3.73 (0.78)	4.20 (0.44)	0.47	-3.2	57.23	0.002	3.47 (0.92)	3.96 (0.66)	0.49	-2.23	37.16	0.032
Facilitating Peer and Other Professional Support (12 items)	3.13 (1.02)	3.82 (0.56)	0.69	-3.61	58.59	0.001	2.52 (1.04)	3.17 (1.15)	0.65	-1.98	24.43	0.06
Improving Social Engagement with Technology (7 items)	3.60 (0.79)	4.12 (0.54)	0.52	-3.08	47	0.003	3.28 (1.03)	3.78 (0.72)	0.5	-2.09	37.99	0.043
Providing Emotional Support (11 items)	3.88 (0.68)	4.40 (0.50)	0.52	-3.55	43.37	0.001	3.82 (0.91)	4.30 (0.56)	0.48	-2.45	44.5	0.018
Client Empowerment (12 items)	3.68 (0.85)	4.46 (0.39)	0.78	-5.27	65.49	<0.001	3.36 (1.03)	3.88 (0.79)	0.52	-2.1	34.97	0.043

practice easily. For the audiologists, this would then particularly hold for 'use of strategies and training to personalize the rehabilitation program', 'client empowerment', and 'facilitating peer support and other professional support'. These results may point towards important needs of audiologist, i.e., they may highlight the strategies for which audiologists require more support in order for them to put the strategies that they do find important, into their daily practice.

DISCUSSION

The purpose of this study was to explore how audiologists and patients perceived the *benefit* and *likelihood of use* of clinical approaches aimed to address the psychosocial needs of adults with hearing loss. The approaches were synthesized in a previous study among the same group of audiologists. Overall, both adults with hearing loss and audiologists rated the benefit and the likelihood of use of all approaches relatively positively (i.e., scores ≥ 3). This finding suggests that both adults with hearing loss and audiologists report value of clinical approaches to address the psychosocial impacts of hearing loss in the audiology setting.

When the types of themes are looked at more closely, it becomes apparent that participants (i.e., both audiologists and adults with hearing loss) seem to report greater value on the internal-based approaches (the client's own emotional response, empowerment, and responsibility), and less emphasis on the external-based approaches (being supported by communication partners, support groups or other health professionals). This is despite the importance of an individual's social environment and social support in relation to audiological rehabilitative success being evidenced in the literature (Ekberg et al, 2015; Hickson et al, 2016; Hickson et al, 2014; Singh et al., 2016; Singh et al, 2015; Singh & Launer, 2016; Southall et al, 2019).

The high regard for clinical approaches relating to *Providing Emotional Support* by both participant groups emphasizes the perceived role that audiologists play in helping their clients adjust to the psychosocial impacts of their hearing loss (Beck & Kulzer, 2018).

Although research involving both adults with hearing loss and audiologists has echoed the importance of provision of emotional support during audiology consultations (Bennett et al, 2020c; Heffernan et al, 2016; Laird et al, 2020 ; Meibos et al, 2019), clinical observations suggest that emotional support is infrequently provided (Bennett et al, 2020b; Ekberg et al, 2014; Grenness et al, 2015). A recent survey of audiologists' knowledge, beliefs and practices suggests that the key barriers to the provision of emotional support are lack of skill, confidence, time, and uncertainty about scope of practice, and the lack of evidence for their value (Bennett et al, 2020c). Similar results were reported by Van Leeuwen et al. (2018). Counselling and emotional support skills have not previously been included and/or formalized in audiology training programs, and as such practicing clinical audiologists require upskilling in this area (Whicker et al, 2018; Whicker et al, 2017).

Two other highly rated themes were *Promoting Client Responsibility* (describing the process of making the client aware that rehabilitation outcomes are largely dependent on their active involvement and commitment to the rehabilitation process) and *Client Empowerment* (describing the process of helping clients discover personal strengths and capacities to take control of their lives). These themes tap into the concept of self-management. Health outcomes are improved when clients understand the importance of managing their own disorder (Schillinger et al, 2002), including the management of hearing loss (Convery et al, 2019; Linssen et al, 2013). Factors that influence hearing aid adoption and use include empowering the client (facilitated through conveying information in a way that matches the client's health literacy), supporting the client's responsibility and choices, employing shared decision making strategies, and encouraging skill development (Convery et al, 2019; Ferguson et al, 2016; Laplante-Lévesque et al, 2010; Laplante-Lévesque et al, 2012; Poost-Foroosh et al, 2011). Audiologists often provide information and encourage skill development, but are less likely to engage the client in shared decision making or collaborative problem-solving (Barker et al, 2016). A number of clinical tools to help audiologists facilitate shared decision making and collaborative problem-solving have been developed (Hickson et al, 2016; Laplante-Lévesque et al, 2010; Pryce et al, 2018; Van Leeuwen et al, 2020). However, many of these have not found their way to being clinically implemented and /or widely used. Some research suggests that audiologists value both

audiometric results and clinical experience over client preferences to inform clinical decision making (Boisvert et al, 2017). This might be different if audiologists were trained to use a standardized tool or decision aid, assisting them in carrying out shared decision making, and addressing psychosocial concerns (van Leeuwen et al., 2018; 2019).

An important consideration when interpreting the results of the current study is that participants would have had varying degrees of familiarity with the individual approaches listed on the survey, which may have biased their rating scores. For example, a participant is unlikely to highly rate an approach that they are unfamiliar with. This phenomenon has been highlighted in the literature relating to group audiologic rehabilitation. In their chapter on the implementation of group audiological rehabilitation, Preminger and Nesbitt (2014) described the importance of including both emotion- and problem-focused coping strategy training; however, in marketing these classes they focused only on the problem-focused coping strategies by calling these “communication classes” because they believed that potential attendees would not understand the benefit of emotion-focused coping strategies. Preminger and Nesbitt (2014) noted specific comments from class attendees who reported that the benefit of the class was due to more than learning communication strategies, and described learning emotion-focused coping strategies such as “not stressing” and “being more relaxed and not so bothered about the deafness”. Participants’ perceptions regarding cost/benefit of attendance improved after they were familiar with the sessions and the gains that were to be made by attending. This may also be true for participating audiologists in this study. The relatively low ranking approach relating to use of photographs to support client counselling is based on the photovoice approach, wherein clients’ share personal photos with their audiologist to facilitate communication, understand needs, and enhance audiological counselling (Saunders et al, 2019). Although photovoice is a well-regarded approach in psychology and social work, its concept is new to audiological practice and it is likely that few of the participants had any firsthand experience with this approach, thus potentially biasing their rating scores.

It is worth noting that audiologists tended to rank the approaches higher than the clients did on the *perceived benefit* scale. It is possible that this is a bias, in the sense that the audiologists would have more knowledge about the existence of, and experience with the particular audiological practices than their clients, and thus clients are more unaware of them. Alternatively, it is possible that these differences represent audiologists not having a full understanding of their clients' needs and wants, or perhaps overgeneralizing use of approaches for the majority of clients. In both cases, the results highlight the need for audiologists to be more patient-centred and employ shared decision making processes, to ensure that clients are an active and equal partner in their healthcare decisions and action plans.

There is mounting evidence for the benefits of utilising family centred care (FCC) in audiology practices, that is, considering the needs of both clients and family members in any clinical exchange. The benefits of FCC includes increased hearing aid adoption (Laplante-Levesque et al, 2010), a decrease in self-perceived hearing handicap when family members attend group audiological rehabilitation classes (Preminger, 2003), improved successful hearing aid use (Hickson et al, 2013), and hearing aid satisfaction (Singh et al, 2015). However, family member involvement is only occasionally observed in clinical practice (Ekberg et al, 2015). A recent study involving interviews of audiology clinical staff explored the barriers to implementing FCC approaches in audiology practice (Ekberg et al, 2020). Participants described barriers to include: insufficient knowledge regarding the principles of FCC; inadequate skills in how to initiate family member attendance; inconsistent training, confidence and resources to support the implementation of FCC; and organisational culture not supporting FCC (Ekberg et al, 2020). The results of the present study support these findings as participants placed greater importance on the *perceived benefit of Including Communication Partners*, than on their *likelihood to use* these approaches.

Limitations and future directions

This study has a number of limitations. First, participants self-selected for the study and thus the results may have been impacted by a sampling bias. Second, given that audiologists

participating in this study also contributed to the generation of the survey items, it is possible that they may have been biased towards rating their own approaches more highly. Third, the approaches in the survey were generated by audiologists from across the world while the participating adults with hearing loss were recruited only from Australia, and so it is possible that not all participants would have been familiar with all approaches included in the survey. Moreover, the Australian sample might limit generalizability to patients of other Western countries. Fourth, it is likely that participants' familiarity and unfamiliarity with individual approaches influenced their ratings. While the results cannot be generalized to all older adults with hearing loss, the themes capture the shared lived experiences for a diverse group of participants and offer previously unreported perspectives. Fifth, participants were generally relatively positive about the approaches, and also about their 'likelihood of use'. It is possible that both participant groups self-selected for this study due to an interest in the topic, thus skewing the results towards the positive. It is noteworthy that our items on likelihood of use for the audiologist may be reflections of their intentions of behaviour, and not behaviour itself. It is common to find an intention-behavior gap for behaviors, so use scores may in fact present a relatively positive picture of the actions they really take in their practices to address their clients' psychosocial needs. Finally, the direct comparisons between the two rating questions *perceived benefit* and *likelihood of use* should be considered with caution as these scales have not been psychometrically validated, and they include measurements of two different underlying constructs. Nonetheless, this exploitative study provides preliminary insight into those approaches that adults with hearing loss and audiologists value with respect to addressing the psychosocial needs of adults with hearing loss.

Clinical implications

Over the last two decades, research has increasingly attended to the psychosocial component of a biopsychosocial model, investigating the psychosocial issues associated with management of chronic health conditions. The psychosocial impacts of chronic health conditions are documented across a myriad of disciplines, for example clients living with chronic pain under the care of physiotherapists report being more distressed by the resulting psychosocial distress, such as worry, isolation, and anguish, than the chronic pain

(Ojala et al, 2015). Recent studies show that allied health professionals may lack the skills, resources and support to integrate psychosocial support services into their daily clinical practices, including in physiotherapy (Driver et al, 2017), speech pathology (Sekhon et al, 2015), and audiology (Bennett et al, 2020c; Van Leeuwen et al, 2018). These results justify the incorporation of training in psychosocial interventions into audiology training programs, but also as continued professional development opportunities for audiologists currently working in the field.

Conclusions

This study suggests that adults with hearing loss and audiologists recognise the importance of approaches that address the psychosocial impacts of hearing loss in audiological rehabilitation. However, they placed greater value on the internal-based approaches (the clients own emotional response, empowerment, and responsibility), and slightly less emphasis on the external-based approaches (being supported by communication partners, support groups or other health professionals).

Acknowledgements

The authors would like to thank Sonova AG, Switzerland for providing funding this project. The authors would like to thank the Ear Science Institute Australia for assisting with participant recruitment and participants for their time.

Declarations of interest

The authors report no conflicts of interest. Barbra Timmer and Gurjit Singh are employed in research capacities by Sonova AG.

References

- American Speech-Language-Hearing Association. (2004). Scope of Practice in Audiology. Retrieved from <https://www.asha.org/policy/SP2004-00192/#sec1.4>
- Audiology Australia. (2013). Audiology Australia Professional Practice Standards - Part B Clinical Standards. Retrieved from <http://www.audiology.asn.au/standards-downloads/Clinical%20Standards%20-%20whole%20document%20July13%201.pdf>
- Barker, A. B., Leighton, P., & Ferguson, M. A. (2017). Coping together with hearing loss: A qualitative meta-synthesis of the psychosocial experiences of people with hearing loss and their communication partners. *International Journal of Audiology, 56*(5), 297-305.
- Barker, F., de Lusignan, S., & Cooke, D. (2016). Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel. *Annals of Behavioral Medicine, 1-12*.
- Beck, K., & Kulzer, J. (2018). Teaching counseling microskills to audiology students: Recommendations from professional counseling educators. *Seminars in Hearing, 39*(01), 091-106.
- Bennett RJ, Barr C, Montano J, Saunders G, Pronk M, Preminger J, . . . RH, E. (2020a). Identifying the clinical approaches used by audiologists to address the psychosocial needs of their adult clients. *International Journal of Audiology - under review*.
- Bennett, R. J., Meyer, C. J., Ryan, B., Barr, C., Laird, E., & Eikelboom, R. H. (2020c). Knowledge, beliefs and practices of Australian audiologists in addressing the psychological needs of adults with hearing loss. *The American Journal of Audiology*.
- Bennett, R. J., Meyer, C. J., Ryan, B., & Eikelboom, R. H. (2020b). How do audiologists respond to symptoms of mental illness in the audiological setting? Three case vignettes. *Ear and Hearing*.
- Boisvert, I., Clemesha, J., Lundmark, E., Crome, E., Barr, C., & McMahon, C. M. (2017). Decision-Making in Audiology: Balancing Evidence-Based Practice and Patient-Centered Care. *Trends in hearing, 21*, 2331216517706397.
- British Society of Audiology. (2016). Practice Guidance: Common Principles of Rehabilitation for Adults in Audiological Services. In. Bathgate, UK: British Society of Audiology.
- Cacioppo, J. T., & Hawkley, L. C. (2009). Perceived social isolation and cognition. *Trends in cognitive sciences, 13*(10), 447-454.
- Cacioppo, J. T., Hawkley, L. C., Berntson, G. G., Ernst, J. M., Gibbs, A. C., Stickgold, R., & Hobson, J. A. (2002). Do lonely days invade the nights? Potential social modulation of sleep efficiency. *Psychological Science, 13*(4), 384-387.
- Convery, E., Keidser, G., Hickson, L., & Meyer, C. (2019). The Relationship Between Hearing Loss Self-Management and Hearing Aid Benefit and Satisfaction. *American Journal of Audiology, 28*(2), 274-284.
- Driver, C., Kean, B., Oprescu, F., & Lovell, G. P. (2017). Knowledge, behaviors, attitudes and beliefs of physiotherapists towards the use of psychological interventions in physiotherapy practice: a systematic review. *Disability and Rehabilitation, 39*(22), 2237-2249.
- Ekberg, K., Grenness, C., & Hickson, L. (2014). Addressing patients' psychosocial concerns regarding hearing aids within audiology appointments for older adults. *American Journal of Audiology, 23*(3), 337-350.
- Ekberg, K., Meyer, C., Scarinci, N., Grenness, C., & Hickson, L. (2015). Family member involvement in audiology appointments with older people with hearing impairment. *International Journal of Audiology, 54*(2), 70-76. doi:10.3109/14992027.2014.948218
- Ekberg, K., Schuetz, S., Timmer, B., & Hickson, L. (2020). Identifying barriers and facilitators to implementing family-centred care in adult audiology practices: a COM-B interview study exploring staff perspectives. *International Journal of Audiology, 1-11*.

- Ferguson MA, Brandreth M, Brassington W, Leighton P, Wharrad H. 2016. A Randomized Controlled Trial to Evaluate the Benefits of a Multimedia Educational Programme for First-time Hearing Aid Users. *Ear and Hearing*, Mar-Apr; 27(2): 123-136.
- Gliem, J. A., & Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Paper presented at the Ohio State University Conference, Ohio, USA. <https://scholarworks.iupui.edu/handle/1805/344>
- Gow, A. J., Pattie, A., Whiteman, M. C., Whalley, L. J., & Deary, I. J. (2007). Social support and successful aging: Investigating the relationships between lifetime cognitive change and life satisfaction. *Journal of Individual Differences*, 28(3), 103-115.
- Grenness, C., Hickson, L., Laplante-Levesque, A., Meyer, C., & Davidson, B. (2015). The nature of communication throughout diagnosis and management planning in initial audiological rehabilitation consultations. *Journal of the American Academy of Audiology*, 26(1), 36-50.
- Grenness, C., Hickson, L., Laplante-Lévesque, A., Meyer, C., & Davidson, B. (2015). The nature of communication throughout diagnosis and management planning in initial audiological rehabilitation consultations. *Journal of the American Academy of Audiology*, 26(1), 36-50.
- Hawkley, L. C., & Cacioppo, J. T. (2003). Loneliness and pathways to disease. *Brain, behavior, and immunity*, 17(1), 98-105.
- Heffernan, E., Coulson, N. S., Henshaw, H., Barry, J. G., & Ferguson, M. A. (2016). Understanding the psychosocial experiences of adults with mild-moderate hearing loss: An application of Leventhal's self-regulatory model. *International Journal of Audiology*, 55(sup3), S3-S12.
- Hickson, L., Lind, C., Preminger, J., Brose, B., Hauff, R., & Montano, J. (2016). Family-centered audiology care: Making decisions and setting goals together. *Hearing Review*, 23(11), 14-19.
- Hickson, L., Meyer, C., Lovelock, K., Lampert, M., & Ham, H. (2013). Factors influencing success with hearing aids in older adults. *International Journal of Audiology*.
- Hickson, L., Meyer, C., Lovelock, K., Lampert, M., & Khan, A. (2014). Factors associated with success with hearing aids in older adults. *International Journal of Audiology*, 53 Suppl 1, S18-27.
- Howell, R. T., Kern, M. L., & Lyubomirsky, S. (2007). Health benefits: Meta-analytically determining the impact of well-being on objective health outcomes. *Health Psychology Review*, 1(1), 83-136.
- Jayakody, D. M., Almeida, O. P., Speelman, C. P., Bennett, R. J., Moyle, T. C., Yiannos, J. M., & Friedland, P. L. (2018). Association between speech and high-frequency hearing loss and depression, anxiety and stress in older adults. *Maturitas*, 110, 86-91.
- Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban health*, 78(3), 458-467.
- Keidser, G., & Seeto, M. (2017). The influence of social interaction and physical health on the association between hearing and depression with age and gender. *Trends in Hearing*, 21, 1-15.
- Kharicha, K., Iliffe, S., Harari, D., Swift, C., Gillmann, G., & Stuck, A. E. (2007). Health risk appraisal in older people 1: are older people living alone an 'at-risk' group? *British Journal of General Practice*, 57(537), 271-276.
- Laird, E. C., Bennett, R. J., Barr, C. M., & Bryant, C. A. (2020). Experiences of Hearing Impairment and Audiological Rehabilitation for Older Adults with Comorbid Psychological Symptoms. *American Journal of Audiology - accepted July 2020*.
- Laplante-Levesque, A., Hickson, L., & Worrall, L. (2010). Factors influencing rehabilitation decisions of adults with acquired hearing impairment. *International Journal of Audiology*, 49(7), 497-507.
- Laplante-Lévesque, A., Hickson, L., & Worrall, L. (2010). A qualitative study of shared decision making in rehabilitative audiology. *Journal of the Academy of Rehabilitative Audiology*, 43, 27-43.
- Laplante-Lévesque, A., Jensen, L. D., Dawes, P., & Nielsen, C. (2012). Optimal Hearing Aid Use: Focus Groups With Hearing Aid Clients and Audiologists. *Ear and Hearing*.

- Lawrence, B. J., Jayakody, D. M., Eikelboom, R. H., Bennett, R. J., Gasson, N., & Friedland, P. L. (2018). Age-related hearing loss and depression in older adults: A systematic review and meta-analysis. *The Gerontologist*, 60(3), e137-e154.
- Linssen, A. M., Joore, M. A., Minten, R. K., van Leeuwen, Y. D., & Anteunis, L. J. (2013). Qualitative interviews on the beliefs and feelings of adults towards their ownership, but non-use of hearing aids. *International Journal of Audiology*, 52(10), 670-677.
- Locher, J. L., Ritchie, C. S., Roth, D. L., Baker, P. S., Bodner, E. V., & Allman, R. M. (2005). Social isolation, support, and capital and nutritional risk in an older sample: ethnic and gender differences. *Social science & medicine*, 60(4), 747-761.
- Mathers, C., Smith, A., & Concha, M. (2000). Global burden of hearing loss in the year 2000. *Global burden of Disease*, 18(4), 1-30.
- McDade, T. W., Hawkey, L. C., & Cacioppo, J. T. (2006). Psychosocial and behavioral predictors of inflammation in middle-aged and older adults: the Chicago health, aging, and social relations study. *Psychosomatic medicine*, 68(3), 376-381.
- Meibos, A., Muñoz, K., & Twhig, M. (2019). Counseling Competencies in Audiology: A Modified Delphi Study. *American Journal of Audiology*, 28(2), 285-299.
- Ojala, T., Häkkinen, A., Karppinen, J., Sipilä, K., Suutama, T., & Piirainen, A. (2015). Chronic pain affects the whole person—a phenomenological study. *Disability and rehabilitation*, 37(4), 363-371.
- Poost-Foroosh, L., Jennings, M. B., Shaw, L., Meston, C. N., & Cheesman, M. F. (2011). Factors in client-clinician interaction that influence hearing aid adoption. *Trends in Amplification*, 15(3), 127-139.
- Preminger, J., & Nesbitt, L. (2014). Group audiologic rehabilitation for adults: Justification and implementation. In J.J. Montano & J.B. Spitzer (Eds.), *Adult audiologic rehabilitation* (2nd ed.) (pp. 307-327). San Diego, CA: Plural Publishing.
- Preminger, J. E. (2003). Should significant others be encouraged to join adult group audiologic rehabilitation classes? *Journal of the American Academy of Audiology*, 14(10), 545-555.
- Pronk, M., Deeg, D.J.H., Smits, C., van Tilburg, T.G., Kuik, D.J., Festen, J.M., Kramer, S.E. 2011. Prospective effects of hearing status on loneliness and depression in older adults- Identification of subgroups. *International Journal of Audiology*, 50: 887-896.
- Pryce, H., Durand, M.-A., Hall, A., Shaw, R., Culhane, B.-A., Swift, S., . . . Chilvers, K. (2018). The development of a decision aid for tinnitus. *International Journal of Audiology*, 57(9), 714-719.
- Saunders, G. H., Dillard, L. K., Frederick, M. T., & Silverman, S. C. (2019). Examining the Utility of Photovoice as an Audiological Counseling Tool. *Journal of the American Academy of Audiology*, 30(5), 406-416.
- Schillinger, D., Grumbach, K., Piette, J., Wang, F., Osmond, D., Daher, C., . . . Bindman, A. B. (2002). Association of health literacy with diabetes outcomes. *Jama*, 288(4), 475-482.
- Sekhon, J. K., Douglas, J., & Rose, M. L. (2015). Current Australian speech-language pathology practice in addressing psychological well-being in people with aphasia after stroke. *International Journal of Speech-Language Pathology*, 17(3), 252-262.
- Shiovitz-Ezra, S., & Ayalon, L. (2010). Situational versus chronic loneliness as risk factors for all-cause mortality. *International Psychogeriatrics*, 22(3), 455-462.
- Singh, G., Hickson, L., English, K., Scherpiet, S., Lemke, U., Timmer, B., & Launer, S. (2016). Family-centered adult audiologic care: A Phonak position statement. *Hearing Review*, 23(4), 16.
- Singh, G., Lau, S.-T., & Pichora-Fuller, M. K. (2015). Social support predicts hearing aid satisfaction. *Ear and Hearing*, 36(6), 664-676.
- Singh, G., & Launer, S. (2016). Social context and hearing aid adoption. *Trends in hearing*, 20, 2331216516673833.

- Southall, K., Jennings, M. B., Gagné, J.-P., & Young, J. (2019). Reported benefits of peer support group involvement by adults with hearing loss. *International Journal of Audiology, 58*(1), 29-36.
- SPSS Inc. (2014). IBM © SPSS Statistics (Version V21). Chicago, IL.
- Trochim, W., & Kane, M. (2005). Concept mapping: an introduction to structured conceptualization in health care. *International Journal for Quality in Health Care, 17*(3), 187-191.
- van Leeuwen, L. M., Pronk, M., Merkus, P., Goverts, S. T., Terwee, C. B., & Kramer, S. E. (2020). Operationalization of the Brief ICF Core Set for Hearing Loss: An ICF-Based e-Intake Tool in Clinical Otology and Audiology Practice. *Ear and hearing.*
- van Leeuwen, L. M., Pronk, M., Merkus, P., Goverts, S. T., Anema, J. R., & Kramer, S. E. (2019). Developing an intervention to implement an ICF-based e-intake tool in clinical otology and audiology practice. *International Journal of Audiology, 1-19.*
- van Leeuwen, L. M., Pronk, M., Merkus, P., Goverts, S. T., Anema, J. R., & Kramer, S. E. (2018). Barriers to and enablers of the implementation of an ICF-based intake tool in clinical otology and audiology practice—A qualitative pre-implementation study. *PLoS One, 13*(12), e0208797.
- Vas, V., Akeroyd, M. A., & Hall, D. A. (2017). A data-driven synthesis of research evidence for domains of hearing loss, as reported by adults with hearing loss and their communication partners. *Trends in Hearing, 21*, 1-25.
- Whicker, J., Muñoz, K., & Schultz, J. C. (2018). Counseling in audiology: Au. D. students' perspectives and experiences. *Seminars in Hearing, 39*(01), 067-073.
- Whicker, J. J., Muñoz, K. F., Butcher, G. M., Schultz, J. C., & Twohig, M. P. (2017). Counseling training in AuD programs: a syllabi review. *The Hearing Journal, 70*(8), 36-37.
- Wilson, B. S., Tucci, D. L., Merson, M. H., & O'Donoghue, G. M. (2017). Global hearing health care: new findings and perspectives. *The Lancet, S0140-6736*(17), 31073-31075.
- Wilson, R. S., Krueger, K. R., Arnold, S. E., Schneider, J. A., Kelly, J. F., Barnes, L. L., . . . Bennett, D. A. (2007). Loneliness and risk of Alzheimer disease. *Archives of general psychiatry, 64*(2), 234-240.