

Satisfaction with hearing assessment feedback using the My Hearing Explained tool: Client and audiologist perceptions

Louise A. Nell^a
Faheema Mahomed-Asmail^{a,b}
Karina C. De Sousa^{a,b}
Marien Alet Graham^c
De Wet Swanepoel^{a,b,d}

^aDepartment of Speech-Language Pathology and Audiology, University of Pretoria, Gauteng, South Africa

^bVirtual Hearing Lab, Collaborative Initiative Between University of Colorado, Aurora, Colorado, USA and the University of Pretoria, Pretoria, South Africa

^cDepartment of Science, Mathematics and Technology Education, Faculty of Education, University of Pretoria, Gauteng, South Africa

^dEar Science Institute Australia, Subiaco, Australia

ABSTRACT

Objective: To determine the perceived satisfaction and understanding of hearing assessment feedback, using the Ida My Hearing Explained Tool (IMHET), compared to the standard audiogram reported by adult clients and audiologists.

Design: This study is a mixed-method design comparing clients and audiologists' perceptions through a single-blinded, randomised control trial and focus group discussions. After using either the audiogram or IMHET for feedback, clients and audiologists completed the adapted Patient Satisfaction Questionnaire (PSQ).

Study Sample: During client's initial audiological consultations, audiologists provided hearing assessment feedback (Total = 51) using the IMHET or audiogram. Twenty-seven clients and seven audiologists participated in focus groups, and/or open-ended questions.

Results: Satisfaction was not significantly different ($p > 0.05$) between the IMHET (76.18; SD : 2.66) or audiogram (75.63; SD : 4.73) for the overall PSQ scores reported by clients and audiologists. Two shared main themes, understanding and satisfaction, were identified for both tools from the focus groups and open-ended questions. A third main theme, recommendations, was identified only for the IMHET.

Conclusions: The IMHET is a valuable resource for clients during hearing assessment feedback. Audiologists recommend that the audiogram be used as a supplement when using the IMHET to provide feedback.

KEYWORDS: Audiogram; behavioural measures; hearing assessment feedback; IDA tool; my hearing explained; psycho-social/emotional; perceptions; person-centred care

Introduction

The most recent *World Report Hearing* endorses integrated, person-centred care (PCC) as the cornerstone for an individual's audiological and rehabilitation demands. Individualising and simplifying health professional feedback are paramount across the lifespan of clients (World Health Organisation (WHO) 2021). Still, missed PCC opportunities occur with traditional feedback protocols remaining, resulting in a lack of client involvement and resistance to change when explaining clients' hearing ability during feedback (Ekberg et al. 2020).

Since 1922, the audiogram has been the primary tool to routinely record clinical results and counsel clients during feedback (Jerger 2013). The gold standard of using the audiogram during feedback still predominantly follows a medical model, focussing on the technical aspects of hearing loss and limiting individualisation to clients' communicative needs and preferences (Luterman 2021; Ekberg et al. 2020; Tai, Barr, and Woodward-Kron 2019; Kessels and de Haan 2003). The audiogram's diagnostic value is undeniable as it is ubiquitous among audiologists (Klyn et al. 2021). However, the intricate nature of the audiogram makes it challenging to understand and recall audiologic information for audiologists, clients, and even other professionals outside the audiology field (Klyn et al. 2021; Fabry 2015). Klyn and colleagues (2019) found that only 60% of recalled information was accurate and only half of the clients reported competency in describing their results to communication partners (Klyn et al. 2019). Kessels and de Haan (2003) obtained similar findings using the audiogram, which indicated that clients forget 40–80% of the information, and only 50% of information recall was correct.

Employing the audiogram as the standard hearing assessment feedback tool typically relies on rote memory rather than discussing and individualising results with clients (Gilligan 2016; Watermeyer, Kanji, and Mlambo 2015; Grenness et al. 2014; Watermeyer, Kanji, and Cohen 2012; Klein et al. 2011; Ross 2004). The clinician may overwhelm clients with unnecessary information, increasing uncertainty and reducing comprehension (Watermeyer, Kanji, and Cohen 2012; Watermeyer, Kanji, and Mlambo 2015; Watermeyer, Kanji, and Brom 2020). Feedback using the audiogram also has limited efficacy if the client cannot engage with the audiologist and fully understand the language during the interaction (Öhlén et al. 2016). The health literacy barrier can be mitigated when relatable, culturally, and linguistically sensitive graphical representations are part of hearing assessment feedback (Dowse 2021; Nayak et al. 2016; Watermeyer, Kanji, and Mlambo 2015).

Ideally, textual information supplemented with appropriate graphics can increase health literacy from 20% to 80% despite low numerical literacy levels, on condition that they have a high graphical literacy level (Garcia-Retamero and Cokely 2017). Although the audiogram is a graphical depiction of audiometric results, it remains a complex technical representation that may limit a client's comprehension during feedback (Klyn et al. 2021; Fabry 2015). Considering these factors, meticulously designed visual counselling material, that is evidence-based and reinforced with written information, can express concepts in a meaningful and easily understandable way to various populations (Garcia-Retamero and Cokely 2017).

Several feasible initiatives to simplify assessment feedback include the *Speech Banana* and the *Speech Intelligibility Index*. These initiatives apply the principle that non-professionals will understand the audiogram when using familiar sounds or associating it to speech. The *Speech Banana* superimposes the audiogram depicting individual phonemes at a conversational level (Ross 2004). Ross (2004), however, has criticised this tool for its static nature, as typical conversation varies, and phonemes are not naturally perceived individually. Consonant and vowel cues increase clients' understanding of speech compared to what the audiogram records within quiet and isolated pure tones (Ross 2004). There are efforts to make the *Speech Banana* accessible to tonal languages, but not all languages have been included yet (Hu, Li, and Lau 2019). A quantifiable alternative to the *Speech Banana* is the *Speech Intelligibility Index* which indicates the perception of functionally perceived speech within quiet, instead of realistic noise within daily life. The *Speech Intelligibility Index* has also led to the misperception of clients asking the amount of residual hearing they may have (Hornsby 2004). The issue with these derivatives is that although the audiogram is simplified, it is still complex (Klyn et al. 2021). Nevertheless, educational sheets and alternative tools may still be beneficial due to the simple language alternatives used to describe the hearing loss and relate it to its functional impact on the perception of sounds (Gilligan 2016).

More recently, the Ida Institute's My Hearing Explained tool (IMHET) has become available. IMHET aims to individualise feedback, improve clients' comprehension of their hearing ability and relate it to their aspirations for their hearing lifestyle (Ida Institute 2021a). The IMHET infographic is a conversational guide that uses basic language (e.g., "brain energy, loudness" and "clarity") related to hearing ability to explain the audiogram's contents (Ida Institute 2021a). The IMHET follows a strength-based perspective by empowering clients to advocate for themselves when informed of their hearing ability in a relatable manner and following principles of good information sharing (Ida Institute 2021a; Blom et al. 2019). The colourful IMHET is centred around an illustrated head, surrounded by icons warm tones (red and orange), and applies universal imagery (circled and triangles) to familiarise clients with hearing rehabilitation information (Ida Institute 2021a). Audiologists prompt clients throughout the initial session to self-report, rate their listening effort and recall their knowledge of hearing management for individualised recommendations (Ida Institute 2021a, 2021b).

Audiologists and their clients must actively engage in a holistic, multifarious process to effectively provide hearing assessment feedback (Watermeyer, Kanji, and Brom 2020; Watermeyer, Kanji, and Cohen 2012; Grenness et al. 2014). Watermeyer, Kanji, and Brom (2020) notes the need to limit unnecessary information and mitigate ambiguity of audiological feedback, which the IMHET aims to address (Blom et al. 2019). Consequently, the objective of this study was to explore the perceived understanding and satisfaction of assessment feedback using the IMHET, compared to the audiogram as reported by clients and audiologists.

Materials and methods

Approval from the relevant institutional review board (HUM011/1220) was received. Before data collection, both participant groups provided written informed consent.

Study design

The study followed a mixed-method design. For the quantitative component, phase one constituted two groups of adult clients for the single-blinded, randomised control trial. Across participating audiology practices, a consecutive group of eligible adult clients attending their first hearing consultation, received the audiogram (control) feedback. The second group of eligible adult clients received feedback with the intervention (IMHET) method. The qualitative component in phase two constituted two focus groups divided between clients and audiologists.

Participants

Five audiology practices with a total of seven audiologists, who routinely used the audiogram during feedback and had no prior knowledge of the IMHET, were included. Audiologists had to be registered with the Health Professions Council of South Africa and have more than two years of working experience. This inclusion criterion ensured competency and experience in hearing assessment feedback with the audiogram. All audiologists were female, bilingual and four out of the seven had postgraduate qualifications.

Clients who were 18 years and older and attended their first hearing assessment, were informed of the study and recruited by the audiologists at the respective practices. Twenty-seven clients received the audiogram (control) feedback and 24 received the IMHET (intervention) feedback. Most participants were male ($n = 31$). One participant did not disclose gender or education. Thirty-nine participants (83%) reported having a tertiary level of education, and only 11 participants had secondary education.

Audiometric assessments comprised otoscopy, tympanometry, pure tone and speech audiometry. Clients had to have hearing loss, speak and understand English and respond reliably to pure tone stimuli. Clients were excluded from the study if they had a significant cognitive impairment (i.e., Dementia or Alzheimers). Clients receiving feedback with IMHET in phase one, initially indicated their consent to participate in focus groups for phase two when approached to participate in the study. Participants were only eligible to contribute to the focus groups if they had a technological device with an accessible internet connection and received feedback through IMHET.

Data collection materials and procedures

Audiologists in this study did not receive any training regarding feedback using the audiogram since it is standard practice. Audiologists only received training regarding the IMHET after the control group (audiogram) ended and before the intervention (IMHET) group commenced. Training included the provision of an original *IMHET* as well as a video of the introduction and application thereof, available on the IDA institute website (Ida Institute 2021a, 2021b). Proficiency of IMHET was self-reported and questions were clarified via elective communication.

In the first phase of the study, participants' feedback experiences and satisfaction with the IMHET and audiogram were reported using an adapted version of the standardised and validated "Patient Satisfaction Questionnaire" (PSQ) (Marshall and Hays 1994) (Supplementary Digital Content 1 and 2). Critical revision and statistical reviews determined the reliability and validity of the adapted PSQ. The adapted version excluded the sub-section on "Financial Aspects" as it is unrelated to the aim of this study, where satisfaction and understanding of the feedback tools are the focus. For this reason, the overall satisfaction score is lower compared to other studies and incomparable to norms. The PSQ included 16 items with the following six sub-sections: "General Satisfaction, Technical Quality, Interpersonal Manner, Communication, Time Spent with the Audiologist, Accessibility and Convenience" (Marshall and Hays 1994). Each sub-section had between two to four items where clients rated their satisfaction on the five-point Likert scale ranging from strongly disagree (scored one), to strongly agree (score five). Client satisfaction increased as the PSQ total score increased.

For both the audiogram and IMHET, a non-compulsory open-ended question was included at the end of the questionnaire. (*Describe how the feedback method contributed to understanding your hearing ability*). With the open-ended questions, six audiologists gave their opinion regarding the value of the audiogram and IMHET. It allowed the

clinicians to complete the question in more time. After feedback using either tool, each client completed the adapted PSQ on-site (Marshall and Hays 1994). Similarly, after providing feedback with the audiogram and the IMHET on-site, every audiologist completed an adapted PSQ to record their perceptions of each feedback method. One audiologist could not implement the IMHET due to COVID-19 lockdown regulations; hence only her perception of the audiogram was recorded.

The second phase was a qualitative exploration of participants' perceptions (clients and audiologists) who received feedback using the audiogram or IMHET with the open-ended question or in focus groups. The first focus group was with clients who have received feedback using the IMHET; the second was with audiologists who participated in phase one. Participants were contacted to obtain consent and arrange an appropriate meeting time two weeks after the cessation of phase one. The researcher facilitated the semi-structured, online, synchronous focus groups over Zoom™, video-recorded and transcribed verbatim, whilst accounting for body language e.g., Nodding (Watermeyer, Kanji, and Cohen 2012).

Analysis

The first phase was analysed with the Statistical Package of the Social Sciences (SPSS v.27.0), using descriptive statistics, reliability tests and normality tests. The Shapiro-Wilk test was used to test for normality of continuous variables, and since all p -values were less than 0.05, the data were not normally distributed, and nonparametric tests were used (Field 2018). The non-parametric Mann-Whitney and the Wilcoxon-signed rank tested for differences. Scales were created for the following continuous variables as the Cronbach alpha values were above 0.6 (Daud et al. 2018, Zhan et al. 2021): "Technical Quality" (4 items), "Accessibility and Convenience" (4 items), "Interpersonal Manner" (2 items) and "Time Spent with Audiologist" (2 items). Although the Cronbach's alpha values were below 0.6 for "Communication" (2 items) and "General Satisfaction" (2 items), scales were created for the following reason. Cronbach alpha values are sensitive to the number of items on a scale. With scales containing few items, it is common to find low values for Cronbach's alpha. In this case it is more appropriate to check the inter-item correlations for the items. Briggs and Cheek (1986) recommend that the correlations not be below 0.1 (as it's unlikely that a single total score could adequately represent the complexity of the items) or above 0.5 (as the items on a scale tend to be overly redundant) which is the case for the scales "Communication" and "General Satisfaction".

All participants and semi-structured interview transcripts were anonymised. Data from questionnaires and focus groups were triangulated from clients and audiologists. The authors verified the results, interpreted and discussed the dataset, and generated new codes until data saturation and inconsistencies were resolved. Data were grouped for thematic analysis from the open-ended questions and the focus group for the audiogram and IMHET.

Results

Satisfaction was not significantly different ($p > 0.05$) for both clients and audiologists when using the audiogram or the IMHET within each subsection and the overall score of the PSQ (Table 1). Forty-one percent of respondents (11/27) who received feedback with the audiogram completed the optional, open-ended question of the PSQ. Twenty-five percent of the participants (6/24) who received feedback with the IMHET completed the open-ended question, and four clients participated in the focus groups. Seven audiologists completed the open-ended question for the audiogram, from which only six completed the open-ended question for the IMHET. Four audiologists (4/7) participated in the focus group to obtain their perceptions of the IMHET compared to the audiogram. When applying thematic analysis, the audiogram and the IMHET (Figure 1) identified two domains with three main themes and thirteen sub-themes from the data mentioned above (Tables 2 and 3).

Before the IDA institute updated the tool, the first client who participated in the study used the IMHET version with coloured emoticons for the "Loudness and Clarity" rating scales. This client specifically noted that the coloured emoticons aided in associating the rating (low, medium, or high) and made it understandable even to children. On the other hand, an audiologist perceived the figure's expression on the first half of the tool to be "unprofessional". All audiologist participants agreed on the supplemental use of the audiogram with the IMHET.

Table 1. Satisfaction with the feedback using the audiogram or IMHET for clients and audiologists using the PSQ (mean and standard deviation).

PSQ Sub-Section	Clients		Audiologists	
	Audiogram (n = 27)	IMHET (n = 24)	Audiogram (n = 7)	IMHET (n = 7)
Technical quality	4.9 (0.3)	4.8 (0.2)	4.8 (0.5)	4.7 (0.2)
Accessibility and convenience	4.6 (0.4)	4.8 (0.3)	4.5 (0.4)	4.8 (0.4)
Interpersonal manner	4.9 (0.2)	4.9 (0.2)	4.7 (0.4)	4.9 (0.2)
Time spent with the audiologist	4.8 (0.3)	4.8 (0.3)	4.7 (0.4)	4.6 (0.5)
Communication	4.8 (0.4)	4.9 (0.6)	4.7 (0.5)	4.7 (0.4)
General satisfaction	4.8 (0.3)	4.9 (0.3)	4.6 (0.5)	4.3 (0.8)
Total PSQ score	76.8 (3.8)	77.0 (2.5)	74.4 (5.6)	74.9 (2.8)

Table 2. Thematic analysis of perceptions regarding the audiogram from clients (n = 11) and audiologists (n = 7).

Theme	Sub-theme	Clients perception	#	Audiologists perception	#
Understanding	Retention and Recall	<p><i>"I have a better understanding of my hearing ability and what I struggle with."</i></p> <p><i>"I am not sure that I will remember 100% that [is] on the graph."</i></p>	6	<p><i>"Other than pure tones", [clients] struggle to understand the rest of the test battery."</i></p> <p><i>"It can be compared between different audiologists at different times as all audiologists use the audiogram."</i></p>	5
	Visual Benefit	<p><i>"Seeing the visible results on a graph aided in my understanding."</i></p> <p><i>"Clearly explained with diagrams of hearing tests."</i></p>	2	<p><i>"As an audiologist, I use the audiogram ... to show ... where on the frequency spectrum certain sounds are and to explain what all the sounds are what they have just heard."</i></p>	1
Satisfaction	Explanation	<p><i>"Excellent attention, explanations and discussion of tests and results. Completely satisfied with everything."</i></p> <p><i>"Precise and to the point."</i></p>	3	<p><i>"I never struggled with my patients struggling to understand my explanation of the audiogram ... they want to know all the detail."</i></p> <p><i>"The audiogram is a powerful, detailed tool full of useful information when explained in an appropriate way that is patient-centred."</i></p>	2
	Supportive Counselling Environment	<p><i>"It made me feel that it had been worthwhile to have a hearing test."</i></p> <p><i>"The audiologist confirmed my suspicions that I have a minor hearing loss."</i></p>	3	<p><i>"I use the audiogram... to show them the ... low and high frequencies and how it translates to their difficulties."</i></p>	1

Frequency.

Table 3. Perceptions of the My Hearing Explained Tool from Clients (n=10) and Audiologists (n=6) with example quotes.

Theme	Sub-Theme	Client Perception	#	Audiologist Perception	#
Understanding	Tool	<i>"user-friendly, simple and self-explanatory." "Looking at the tool a few weeks later, I still understand it completely." "Very simple and easy to understand. It is quick and easy."</i>	8	<i>"The IDA tool is easier to understand than the audiogram." "I will not be able to explain a hearing loss with just only the tool... the tool did not help ...me explain it better than ordinarily ...too simplistic ... it was difficult to explain the high and low-frequency results with just the tool."</i>	6
	Language	<i>"My hearing was at capacity." "The language is also easy to understand"</i>	6	<i>"The tool helped me realise ...it is good to always rephrase and use it in easier terms... this is just a good reminder... to relay the information in an easier way." "Often, we... lapse into a script, and this ... breaks [the] routine of following the explanation of the audiogram."</i>	5
	Retention and Recall	<i>"It makes sense that I need a hearing aid." "I have been able to explain the story behind my ears for the last two months." "Wonderful handout to work through afterwards and also to explain to others."</i>	6	<i>"This makes it easier for [clients] to explain [their hearing ability] to the family members at home." "The tool helps to relate it into layman's terms, especially when they take it home when their spouses did not come to the appointment."</i>	6
Satisfaction	Experience	<i>"The experience is the best you can get." "I am very satisfied ... I cannot complain."</i>	5	<i>"Definitely continue to use the tool going forward" (n = 3) "Because I have had my traditional way of giving feedback for several years, it felt like more is needed but not with all patients."</i>	5
	Supportive Counselling Environment	<i>"It was not overwhelming." "The tool was not intimidating at all ... You do not have to be afraid of the person using big words. "She... listened to me."</i>	9	<i>"It created a comfortable and calm environment ... as you work through it together and discuss it. It reduces pressure on clients." "The tool to make it easier for them with their complaints or what they are struggling with."</i>	6

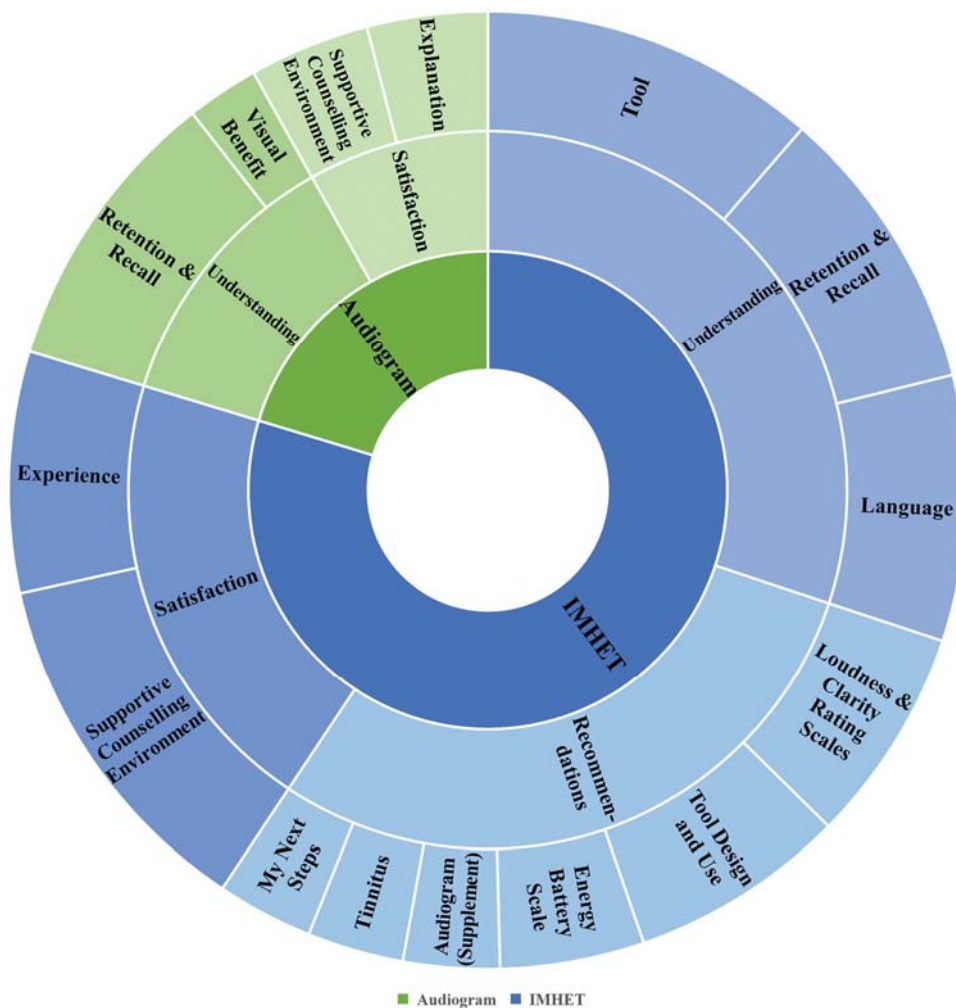
Frequency.

Table 4. Clients (n = 10) and audiologists (n = 6) overall perceptions of the IMHET and specific recommendations with example quotes.

IMHET sub-themes	Overall perceptions	#	Specific recommendation	#
Tool design and use	<i>"[for] gradual hearing losses to use it ... over time. The tool would be great for students to gain confidence and when learning how to give feedback. It will work with all socio-economic groups." "Still not too shallow and immature" ... "It is a take-home tool for patients ... It is something to do with the patient and for them to take home."</i>	6	<i>"The [figure] at the top takes a lot of space. I would like to write in that space. Almost if you took the scales and translated them with the figure, each ear would have its scales by the ear (loudness, clarity, word recognition at each ear) and then cognition at the top... This picture and these scales could easily be integrated ...better."</i>	3
Loudness & clarity rating scale	<i>"Gave me a little bit more interaction when we did the feedback. It was not just me saying the results, but I also asked them I rate it low. Do you agree with this, and that made it a little bit more interactive"?</i>	2	<i>"I would prefer it to be broken up in ... low frequency and high frequency ... You can have a poor high-frequency threshold and yet good word recognition scores. I would prefer it to be my ability to hear high, low pitch sounds and speech to be broken down more." "It would be nice for there to be a section for the client to rate their ability for speech in noise and speech in quiet."</i>	5
My next steps	<i>"Communication strategies is irrelevant for a first consultation" "She was clear and wrote down the next steps is going to the ENT" "I like my next steps and communication strategies as it started open-ended other conversations beyond hearing aids."</i>	3	<i>"Perhaps if there was an additional space... where you can put down more specific comments where there is currently only the section for other. So, you can say return in two weeks for hearing aid discussion or send quotation before next appointment." "I would remove the communication strategies section as it was irrelevant at the first hearing consultation and more for situations like hearing aid fittings."</i>	1
Energy battery rating scale	<i>"Most of [the clients] struggled with this [section]" "Not misleading but ambiguous as it can be interpreted in one of two ways... I was never too sure if you require a lot of energy or if your energy is low after listening" "Actually, opened up the discussion to think about the effect of the hearing loss... I actually enjoyed the energy for listening bar more."</i>	4	<i>"I would rather have the term effort or listening effort there than the battery because that would help explain it there for them [clients]"</i>	2
Tinnitus	<i>"I wanted to understand why this is happening to me... my hearing is almost fine it is just that I cannot distinguish all sounds properly... sometimes, there is damage somewhere."</i>	1	<i>"I would add a tinnitus bar as 80% of the clients also had tinnitus which was their biggest concern ...and a bar of how it affects them would also be good."</i>	3
audiogram (supplement)	<i>"With the audiogram, [the client] have a deeper understanding of the anatomy of hearing, whereas, with the tool, it lacks depth. But some people need more information where others would be satisfied with what is on the tool alone."</i>	1	<i>"I don't think I can compare the two [IMHET and audiogram]. They are not mutually exclusive... It won't be enough to only use the tool I will need my audiogram to explain the tool." "I [would use the IMHET] in combination with the audiogram side-by-side, then I [would] translate it to the IMHET."</i>	5

Frequency.

Figure 1. Sundial displaying themes and sub-themes identified for the audiogram and IMHET. The inner ring depicts the domains, the middle ring displays the themes, and the outer ring shows the sub-themes identified during the analysis.



Discussion

Clients and audiologists' satisfaction ratings were not significantly different for hearing assessment feedback between the IMHET, or audiogram. Although not significant, the overall satisfaction rating was higher with the IMHET than the audiogram for both clients and audiologists. Audiologists generally are comfortable using the IMHET tool for feedback, but they perceive the audiogram as essential alongside the alternative feedback tool.

The results suggest that clients recall broader intervention plans with the alternative feedback tool and audiologists noted increased awareness to simplify feedback. Audiologists described the functional impact of clients' hearing ability with the IMHET using "simple and understandable terms". Unless meticulously explained, the audiogram remains a multifaceted graph upon face value and clients often struggle with content beyond pure tones (Klyn et al. 2021; Watermeyer, Kanji, and Cohen 2012). In this and other studies, audiologists describe the shift from "detailed" information counselling with the audiogram (Klyn et al. 2021; Watermeyer, Kanji, and Mlambo 2015) to simplified and individualised feedback with the IMHET. The shift reflects in clients' recall and diction choice. With the IMHET clients described their hearing ability using terms like "capacity" instead of technical terms akin to "minor hearing loss" with the audiogram. Clients recalled their diagnosis and intervention options with the audiogram (Watermeyer, Kanji, and Cohen 2012). However, the diagnosis and broader intervention plans are recalled with the IMHET, ranging

from the client's quality of life to communication strategies. One audiologist stated: *"I like my next steps and communication strategies as it started open-ended conversations beyond hearing aids."* With the audiogram, clients also expressed their concern that they will *"not remember 100%"* of the feedback. However, one client interestingly reported that they *"understood ... at a medical level as well"*.

One of the sub-themes that emerged from the analysis is a supportive counselling environment for the audiogram and IMHET. A common phenomenon that clients experience in the health care sector is the uncertainty and stress of the unfamiliar consultation room and assessment procedure (Klein et al. 2011). Klein and colleagues (2011) found that these variables are barriers to requesting further information. When using the IMHET, the environment is described as *"not overwhelming [or] intimidating"* and the audiologist actively listened (*"she ... listened to me"*). Whereas one audiologist who used the audiogram reported that some clients *"just go yes, yes, yes,"* which may indicate a sense of being overwhelmed. These findings emphasise the need for a supportive counselling environment during hearing assessment feedback and the IMHET may facilitate this easier (Blom et al. 2019). When addressing clients' emotional states with the IMHET, cognitive processing may increase, resulting in the improved recall of feedback information (Luterman 2021).

The need to address clients' emotional states is seen in conjunction with clients explaining their hearing ability to communication partners (Blom et al. 2019). The audiologists unanimously agreed that the IMHET is most valuable as an educational information sheet during the focus groups. The IMHET being *"user-friendly"* and *"self-explanatory,"* assisted clients to recall their hearing ability and then referred to the IMHET tool in the discussion. Previous studies have also acknowledged the need for written information as clients often feel overwhelmed or misunderstand information during hearing assessment feedback (Chia and Ekladius 2021; Klein et al. 2011). The IMHET allows clients *"to relate to the results"* and *"explain"* it in *"layman's terms"* to *"family members at home"*. Consequently, the IMHET's objective to assist clients in relaying their hearing ability to communication partners (Blom et al. 2019) was most successful, as the IMHET acts as a guide during this conversation for clients.

One audiologist reported in the focus groups that she will not be implementing the tool as a standard practice but on an *"as-needed basis"* with the audiogram, due to the limited consultation time. When applying PCC tools, a common perception is that it is time-consuming, and that time is the most significant barrier when addressing a client's socio-emotional needs within the allocated consultation time (Johnsen et al. 2021; Ekberg et al. 2020). However, Luterman (2021) suggest that clients can only progress effectively through hearing rehabilitation as they are emotionally prepared. Consequently, taking the time as an audiologist to discuss and interact beyond the results will be beneficial in the long term and align with PCC principles (Johnsen et al. 2021). The IMHET achieved *"more ... interaction, especially with the energy for listening scale"*. When rating this scale, audiologists prompted clients to discuss and rate their listening effort and quality of life within their social environment. Prioritising time for such discussions and advocating for PCC tools can be beneficial (Johnsen et al. 2021) as clients seek information and support (Ekberg et al. 2020) beyond the audiogram's results. However, refinement and advocating for PCC is required to ensure clinical development and improved client outcomes for PCC applications (Johnsen et al. 2021; Luterman 2021).

Valuable recommendations were identified in the IMHET focus groups to improve the tool (Table 4). Recommendations were specific to design and use, loudness and clarity rating scale, energy battery rating scale, my next steps section, tinnitus and most predominantly using the audiogram with the IMHET. All audiologists noted the complimentary use of the audiogram with the IMHET (and vice versa). They reported that the audiogram is a *"detailed tool full of useful information,"* with one indicating that it must be explained, *"in an appropriate way that is patient-centred"*. Audiologists also noted the perceived shortfalls of the IMHET from explaining high and low-frequency results and describing the degree and configuration of the hearing loss. Audiologists made recommendations to expand the IMHET scales and use more familiar imagery (emoticons) to address some of the concerns of the "Loudness and Clarity" rating scales. Two audiologists also indicated that it would be beneficial to include tinnitus in the IMHET. However, this is a common shortfall for both the audiogram and IMHET in not explicitly facilitating tinnitus discussions during feedback.

< Place Table 4 approximately here >

The main limitation of this study was the limited sample size of audiologists for phase one. Furthermore, most client participants also resided in urban areas were English or Afrikaans and had a minimum of secondary education. Future studies require a larger sample size to determine significant differences and generalisability (age, cultural and linguistic origin, education level, public vs private setting) when determining the satisfaction ratings to the applied recommendations. The study's results concur that both tools enable informational counselling, but what makes the IMHET unique to the audiogram is that it facilitates more engagement and acts as an educational information sheet for clients. Consistently implementing PCC strategies and tools without disrupting a coherent workflow have favourable client satisfaction outcomes and improves client understanding (Chia and Ekladius 2021; Watermeyer, Kanji, and Brom 2020). PCC tools can support the engagement of audiologists to make hearing consultations more person-centred.

Conclusion

The IMHET is a valuable educational information sheet for clients during hearing assessment feedback. Clients reported the IMHET to be user-friendly, self-explanatory and conducive to a supportive counselling environment. Audiologists recommend that the audiogram be used as a supplement when using the IMHET to provide feedback. The IMHET is an alternative or additional feedback tool that incorporates simplified language, enables individualised feedback and can foster client interactions. Recommendations to improve the IMHET could further enhance its usefulness for audiologists and clients.

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ORCID

Louise A. Nell: <http://orcid.org/0000-0002-4270-4298>
Faheema Mahomed Asmail: <http://orcid.org/0000-0002-3666-8331>
Karina C. De Sousa: <http://orcid.org/0000-0003-1742-1613>
Marien Alet Graham: <http://orcid.org/0000-0003-4071-9864>
De Wet Swanepoel: <http://orcid.org/0000-0001-8313-1636>

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