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Original Article

Audiologists' communication behaviour during hearing device management appointments

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Abstract

Objective: The aim of this exploratory study was to describe audiologist communication behaviours during appointments for hearing device monitoring and management before and after participation in counselling skills training. *Design*: The study used a longitudinal design with three assessment points over 6 months. *Study sample*: The sample included 10 audiologists and audiology graduate students interacting in a professional setting with their clients. *Results*: Audiologists reported improvement in their counselling skills from pre-training to follow-up, which was consistent with objective findings that audiologist relative speaking time decreased from pre-training to post-training as well as from pre-training to follow-up. Observer-rated scores of participants' counselling skills; however, yielded no significant differences across time. *Conclusions*: Some improvement was noted in audiologists' counselling behaviour following a 1-day communication skills workshop and continued learning support. It is evident; however, that further training, such as increased training and performance feedback, is needed to maintain and enhance audiologist progress in the various aspects of counselling.

Key Words: Communication, hearing device, counseling

Hearing loss impacts individuals of all ages (National Institute on Deafness and other Communication Disorders, 2010), and many use hearing devices to assist with communication. In learning to manage and use hearing devices, numerous challenges can arise, interfering with effective use. For example, perceived benefit from hearing aid use, attitudes about hearing aids, and perceived ability to manage hearing aids were found to influence help seeking and hearing aid uptake for older adults (Meyer et al, 2014). The challenges experienced by parents have resulted in low hours of daily hearing aid use for children (Jones, 2013; Walker et al, 2013; Muñoz et al, 2014), negatively influencing spoken language outcomes (Tomblin et al, 2014). Some factors have been shown to influence hearing aid use for children including maternal education, degree of hearing loss, child age (Walker et al, 2013; Muñoz et al, 2016), as well as the caregiver experiencing depressive symptoms (Muñoz et al, 2016). Further research is needed; however, to better understand other factors that may influence experiences and success, such as audiologists' counselling skills, client self-efficacy, and overall type and quality of interactions between the audiologist and client (Knudsen et al, 2010). How audiologists manage communication with clients can influence what is ultimately discussed, and whether or not the conversation reflects topics of importance to the client.

Recent research in audiology has revealed a lack of patient-centredness in audiologist–client interactions. During history taking for older adults, a phase that is important for relationship building and later shared decision-making, audiologists took control of the exchange by asking closed questions, and frequently interrupted the client, resulting in verbal dominance by the audiologist (Grenness et al, 2014). It was also observed that less than 5% of the utterances addressed an emotionally related topic. In discussions about hearing aids, when adult patients raised emotional concerns, audiologists did not validate their feelings or respond in an empathetic manner, rather they tended to focus on technical information (Ekberg et al, 2014). When healthcare providers respond to clients' emotional distress or concerns by distancing themselves or avoiding emotional aspects of care, communication will be less effective (Parle et al, 1997; Lindblad et al, 2005). To have an open and accepting partnership, audiologists need to be aware of and attend to how they respond, receptively or with avoidance, to difficult situations (Siegel, 2010)

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because barriers to effective management and use of hearing devices can include external (e.g. cost, lack of knowledge) and/or internal factors (e.g. confidence, fear).

Patient-centred interactions

Patient-centred interactions have been found to improve client health outcomes and promote adherence to intervention recommendations (Robinson et al, 2008). In healthcare, when physicians were good communicators and received communication training, patients were more likely to adhere to recommendations (Zolnierek & DiMatteo, 2009). Training increased providers' use of strategies that facilitate conversation oriented towards behaviour change, competence in effective use of such strategies (e.g. Delvaux et al, 2004; Heaven et al, 2006), and increased provider confidence in their communication skills (e.g. Ammentorp et al, 2007). Audiologists have also reported valuing patient-centred care (Laplante-Lévesque et al, 2014); however, research related to effectiveness of counselling training within audiology is limited.

Speaking time, or the ratio of conversation dominated by the professional relative to the patient, during the appointment can be an indicator of patient-centred interactions (Ivey et al, 2010). Audiologists are typically responsible for conveying precise technical information to clients about their hearing devices (e.g. how to operate the device), which can lead to sessions characterised by imbalanced interaction patterns. Unfortunately, this occurs at the expense of open communication from clients, as clients may not voluntarily share their own concerns if they do not have the conversation space to do so or if they are not prompted to do so by audiologists. Although Ivey et al (2010) recommended the percentage of client speaking time should exceed that of the counsellor in psychotherapy counselling settings, this recommendation may be adjusted for clinical audiology sessions, given that the fundamental goals of psychotherapy and audiological management are different. The realistic goal in the latter context may be to achieve a balance of speaking time between audiologist and client rather than a disproportionate contribution from one party. Achieving greater balance in speaking time is a requisite step for clients to express concerns or successes, and for audiologists to listen with empathy and caring, which may then lead to further development and growth (Ivey et al, 2010), as well as healthy behaviour change (e.g. increasing patient adherence).

Counselling is a critical component of audiology service delivery. To effectively help clients address issues, audiologists need to be skilled in supporting a process of shared decision-making, and incorporate patient-centred care throughout their interactions with clients. The aim of this exploratory study was to describe audiologist communication behaviours before and after training in counselling skills.

Methods

Study overview

A longitudinal study design examined audiologsts' communication behaviours with three assessment points over 6 months (pre-training, post-training, follow-up). A 1-day training workshop was provided to audiologists and audiology graduate students between the first two assessment points. The aim was to determine the effect of the 1-day training workshop on the communication skills and support practiced by providers working with individuals with hearing loss – as measured by a self-report questionnaire, audiologists' in-session behaviours, and observer-rated counselling skills. All study procedures were approved by the Utah State University (USU) Institutional Review Board.

Participants and recruitment

Participants for this study included 10 audiologists (four clinical audiology instructors and six audiology graduate student audiologists [50% female]) at USU who were providing clinical services during the entire 6-month study period to individuals with hearing loss receiving services at USU for hearing device (i.e. hearing aids, cochlear implants) monitoring, as well as 53 clients who provided consent to be recorded during their appointments. To recruit participants, the researchers presented the study purpose and procedures to USU clinical faculty and students. Audiologists interested in participating were asked to complete an informed consent form for the study. Audiologists invited their clients to participate in the study at the time of their appointment. An a priori power analysis was conducted to calculate an appropriate sample size for the study. Assuming an intervention partial η^2 effect size of 0.20, and setting the alpha as 0.05, an N of 10 was determined to be sufficient to attain statistical power of 0.8.

Procedure

Training for audiologists was conducted in May 2015 by a licenced clinical psychologist. It consisted of a 1-day workshop on skills associated with addressing the psychosocial aspects of counselling. The workshop was structured as a seminar with opportunities for interaction, role-play, and discussion throughout the day. Audiologists were taught to find clear goals upon which to judge treatment gains. Basic assessment skills such as using open-ended questions, funnelling broad issues down into specific ones, and double checking assumptions were covered. Identifying whether client challenges were internal (e.g. embarassed with how the hearing aid looks) versus external issues (e.g. difficulty manipulating the hearing aid). This is important because internal may require more counselling skills than external issues. Two general treatment techniques were taught for internal issues: cognitive challenging or acceptance and mindfulness techniques. In general, if the cognition could be challenged it may be. For example, ''I fear I look old with these heading aids'', could be challenged with, ''let's interview five people and see if they can see them''. If peer feedback still leaves fear the audiologist could answer with acceptance by saying, ''Let's practice allowing the fear of being embarrassed to be there so that you can move along in life and do the things you want to do''. Validation of emotions was also taught, for example, ''Many people report feeling embarrassed when they start wearing hearing aids''. Finally, methods to increase motivation were covered, for example, ''how might wearing your hearing aids improve your and your family's life?'' The training was provided at no cost to participants, and all 10 audiologists attended the training workshop.

Learning support was provided by the same psychologist that conducted the workshop following the training, in the form of weekly online consultation meetings via Zoom for 2 months, as well as individual consultation with a licenced clinical psychologist upon request for 6 months (the period of the study). A log, completed by the first author, was used to track participation in the offered learning support. Information on the type of support needed to apply clinical techniques in session as well as frequency of support seeking was collected using the log.

Appointments for hearing technology monitoring and management were randomly selected for recording by the researchers, after they were screened for eligibility (i.e. follow-up sessions with clients with hearing devices, clients consented to be recorded). Audio recordings of interactions between the audiologist–client dyads were taken at three time points: pre-training, post-training (2 months after pre-training), and follow-up (6 months after pre-training). Different dyads were recorded over the different assessment points as the primary dependent variable of interest was audiologist behaviour in session. At least one recording was obtained from each audiologist–client dyad at each time point, with a maximum of two recordings per time point. A total of 54 recordings were collected for the study, and the mean length of the recordings was 46 min (range = 7–142 min). Audiologists and their clients wore lapel microphones during clinic sessions for recording. Sessions were recorded using the softwares, AudioBox version 2.6.5 and StudioOne 2, which allowed for separation of audio channels (one for the audiologist and one for the client) to facilitate analyses.

Audio recordings were edited such that device testing portions during which neither the participant nor client was talking were removed from the audio files. These edited files without testing were used in subsequent analyses. All recorded sessions were analysed.

Measures

Audiologist Behaviours Rating Scale

This 10-item self-report measure was developed by the researchers to assess audiologists' self-perceived communication behaviour skills. Items are rated on a 7-point Likert scale from 1 (never true) to 7 (always true; see Tables 2 and 3). The total score of the seven items (range = 7–70) was used as a self-rated, global measure of communication behaviour skills, with higher scores indicating more effective skills. Sample items from the self-report version include: ''I implement behaviour change plans with my clients'', and ''I address thoughts that are getting in the way of my client reaching our goals''. Based on the guidelines provided by George & Mallery (2003), ''≥.9 – Excellent, ≥.8 – Good, ≥.7 – Acceptable, ≥.6 – Questionable, ≥.5 – Poor, and ≤.5 – Unacceptable'' (p. 231), internal consistency for the measure was good to excellent (Cronbach's $\alpha = 0.82$ at pre-training, 0.91 at follow-up).

Counselling Competencies Scale

The Counselling Competencies Scale (CCS; Swank et al, 2012) is an instrument designed to assess counselling competencies among counsellors-in-training based on their counselling skills, dispositions and behaviours. The present study used a modified version of this scale, focussing on primary counselling skills, but not adherence to psychological professional standards (e.g. case conceptualisation, seeking supervision/consultation). Participants were rated on a scale of 1–8, where the anchors were 2 = below expectations/insufficient/unacceptable, 4 = near expectations/developing towards competencies, 6 = meets expectations/demonstrates competencies, and 8 = exceeds expectations/demonstrates competencies. These ratings were completed by the psychologist who conducted the workshop and provided learning support as well as a psychology graduate student. Recordings were de-identified as to when the recording was obtained (i.e. pre-training, post-training, follow-up) to minimise the risk of bias during coding.

The specific aspects of counselling coded are listed in Table 1. A global counselling competency score (range = 0–80) comprising these components was used for subsequent analyses. The scale has demonstrated excellent internal consistency (Cronbach's $\alpha = 0.93$) and acceptable criterion validity ($r = 0.41$ with counselling practicum course grade, $p < 0.01$; Swank et al, 2012). The internal consistency in the present sample ranged from acceptable to excellent (Cronbach's $\alpha = 0.87$ at pre-training, 0.66 at post-training, 0.93 at follow-up; George & Mallery, 2003). Twelve percent of the recordings were double coded, and interrater reliability was calculated using the intraclass correlation coefficient (ICC). The ICC indicated excellent agreement beyond chance between coders (ICC = 0.95, 95% CI [0.92, 0.97]; Cicchetti, 1994). The remaining recordings were independently coded by the psychology graduate student.

Frequency of audiologist behaviour

The licenced clinical psychologist who conducted the workshop and provided learning support and the psychology graduate student coded recordings for audiologist counselling behaviours. Each minute of each audio recording was coded for the presence or absence of all items listed in Table 2. The total frequency of each behaviour in each minute was tallied, and the percentage of occurrence was calculated. Eleven percent ($n = 6$) of the recordings were double coded, and checked for interrater consistency ($\kappa = 0.77$). The following guidelines can be used to interpret the κ coefficients: ≤0 = no agreement, 0.01–0.20 = none to slight, 0.21–0.40 = fair, 0.41–0.60 = moderate, 0.61–0.80 = substantial, and 0.81–1.00 = almost perfect agreement (McHugh, 2012). Once reliable coding was established between the graduate student and psychologist (based on the calculated κ value), the

Table 1. Coding guidelines for counselling skills.

Category	*Brief description*
Encouragers	Includes minimal encouragers and door openers
Questions	Use of appropriate open and closed questioning
Reflecting content	For example, paraphrasing, summarising
Reflecting feelings	–
Advanced reflection	Advanced reflection of feelings and/or reflection of values, meanings and core beliefs
Confrontation	Challenging client to recognise and evaluate inconsistencies
Goal setting	Collaborating with client to establish realistic, appropriate and attainable therapeutic goals
Focus of counselling	Focussing [or refocusing] client on her therapeutic goals
Expression of appropriate empathy and care	Being present and open to the client
Expression of appropriate respect and unconditional positive regard	–

Table 2. Coding guidelines for audiologist behaviour.

Category	*Description*	*Examples*
Small talk/irrelevant conversation	• Asked client about their week • Talked about something unrelated to clinical matters	''Do you guys have big plans for the weekend?'' ''Can I get you a water?''
General assessment	• Assessed problems with the actual hearing device and related accessories • Tested device and/or client's hearing • Explained testing procedure • Diagnosed specific issue with device • Asked client to try on device • Anything related to examining the device	''So how are your hearing aids working?'' ''So with your current hearing aids, what are the situations that are the most difficult to navigate for you?''
Education	• Taught client how to use device or what to expect from device • Provided general information about the device and related accessories • Provided information about resources available • Relayed information based on clinical experience or clinical knowledge • Described consequences of modifying device use	''So, this is data logging – what this does is it takes a look at and records everything that happens, so on average, you're wearing your processors 8–9 hours a day, both ears'' ''So that's called a wax trap, and what it does is it catches all the wax so it doesn't go into this part, which is your receiver''
Assessing barriers and motivation	• Asked client about external factors (e.g. inconvenience, difficulty of use, lack of knowledge) that interfere with their target behaviour (e.g. wearing hearing aids) • Asked client about internal factors (e.g. anxiety, stigma-related thoughts) that interfere with their target behaviour (e.g. wearing hearing aids) • Asked client about reasons for engaging or not engaging in target behaviour	''What do you think is the most challenging part of taking care or assembling and taking care of [your hearing aids]?'' ''How are you feeling about y'all's routine, getting [the hearing aids] in and out?'' ''Are [the hearing aids] comfortable?''
Listening and reflection	• Repeated/rephrased client's words • Clarified what client said	''Yeah, it's really frustrating when you are left in the dark. [In response to client's concerns about dealing with disability resource agencies]'' ''So you have a lot going on. [Client mentioned that they were moving]''
Clarifying treatment goals	• Reiterated client's treatment goals • Asked client what she wanted to get out of treatment • Asked client about treatment goals	''[With reference to length of time wearing hearing aids] Where do you want to be?'' ''Is there any certain-certain technology or feature of a hearing aid that's important to you, that you're like I gotta have or I prefer this over something else? What's important to you there?''
Planning for behaviour change	• Implemented specific behavioural steps for client to practice • Assigned behavioural ''homework'' for client to do after session (e.g. monitoring hearing aid functioning, researching use of hearing aid)	''For homework, I'd like you to work on using a couple of those strategies [to facilitate communication]'' ''So, her homework – it's – before we see her next time in December. We need to try and work harder on increasing the number of hours [wearing the hearing aid]''
Addressing barriers and motivation	• Provided specific advice to help client solve issues associated with external factors (e.g. suggested a specific software/accessory to target client's problem with the device) • Any talk on how to deal with internal factors that interfere with target behaviour (e.g. encouraged willingness to have uncomfortable feelings) • Talked about personally important reasons for client to engage in target behaviour (values)	''[Hearing aids fall off when client plays sports] Med-El has got this sports band''. ''[. . .] That's one option, which I don't think – I don't think looks terrible'' ''[Client reported that dome was not fitting comfortably] We have a couple options: we could mess with the receiver again, we could try lengthening the receiver, see if it just – if it's not so tightly fit, if it wouldn't be prompted to move more''

remaining recordings were coded independently by the graduate student.

Data analysis

Behavioural coding

Recordings were coded for counselling skills using the CCS as well as frequency of counselling behaviours (refer to Table 2). Ten percent of recordings ($n = 6$) were selected for independent coding by two trained coders to establish interrater reliability.

Relative speaking time

For the speaking time analysis, one recording per time point per audiologist–client dyad was randomly selected. A recording sample of 10 min, after the first 3 min, was extracted from each of the randomly selected sessions. We selected to use 10 min of interaction at the beginning of the appointment so that we could calculate percentage speaking time (PST) during a period in which a relative balance of speak time would not be affected by specific appointment tasks. The first 3 min of the appointments were excluded due to preponderance of small talk or clinically irrelevant conversation.

The following 10 min were selected as they typically involved clinical assessment, rather than testing procedures. Thus, using this portion of the session to calculate PST allowed us to control for context. Recordings less than 13 min long were excluded from these analyses due to insufficient length; one recording was excluded for this reason. Thus, a total of 29 recordings were used in the speaking time analyses.

Using acoustic analysis software, Praat version 5.4.09 (Boersma & Weenink, 2014), judges manually annotated each of the 10-min recording samples for individual speaking turns of the audiologist and the client. The beginning of each speaking turn was identified as the moment that a conversational participant began articulating an utterance and ended when articulation ceased. A MATLAB script was then used to extract and compute data regarding speaking time for the audiologist and the client. These data were then used to generate a PST score for audiologist (and client) by dividing the sum of individual speaking time over the course of the 10-min sample by the sum of audiologist and client speaking time over the course of the 10-min sample.

Twenty percent of the recordings were remeasured by a second judge to obtain interjudge reliability estimates regarding annotation accuracy and calculation of PST. Discrepancies between the remeasured data and the original data revealed that interjudge agreement was high ($r > 0.94$), with only minor absolute differences.

Results

Learning support utilisation

Five 1-h learning support sessions were held over 3 months following training. Attendance for these learning support sessions ranged from 30% to 90% of participants ($M = 64\%$), and the individual attendance record ranged from 0 to 5 sessions (0 sessions [$n = 1$]; 2 sessions [$n = 1$]; 3 sessions [$n = 3$]; 4 sessions [$n = 4$]; 5 sessions [$n = 1$]). The themes discussed during these learning support sessions included: addressing client barriers, aligning perceptions, student issues, addressing emotions, managing referrals, managing staying on topic, sharing bad news, providing education, being present and non-judgmental, and reflection/summarising skills.

Self-rated audiologist behaviour

Audiologists completed a self-rating of their communication behaviour pre-training and at the end of the study. A repeated measures analysis of variance (ANOVA) revealed a significant difference between participant ratings of communication behaviour skills at pre-training ($M = 48.7$, $SD = 5.91$) and follow-up ($M = 54.8$, $SD = 6.71$; $F[1] = 16.67$, $p = 0.003$; partial $\eta^2 = 0.30$). Audiologists perceived an improvement in their communication behaviour.

Observer-rated audiologist behaviour

Table 3 and Figure 1 provide a summary of change in audiologist behaviour (expressed as percentage frequency of occurrence per session) across the three time points. The following findings are based on visual inspection of graphs as statistical results for the variables of interest (i.e. counselling skills) from repeated measures ANOVAs were not significant (*p*s ranged from 0.341 to 0.705; partial η^2s ranged from 0.043 to 0.126). The low effect sizes suggest a lack of true difference over time, rather than a lack of statistical power.

Irrelevant conversation/small talk increased linearly across time, whereas general assessment and education decreased from pre-training to follow-up, with more pronounced decreases from post-training to follow-up. Inverted V-shapes characterised changes in assessment of psychological variables and reflection, such that participants showed increases immediately after the workshop, but regressed to pre-training levels at follow-up. Clarifying treatment goals and overall counselling skills showed little change from pre-training to post-training, but increased from post-training to follow-up. Planning behaviour change decreased from pre-training to post-training, and remained somewhat constant from post-training to follow-up. Finally, addressing psychological variables was constant from pre-training to post-training, but decreased from post-training to follow-up. It is worth noting that the percentage frequency with which the psychologically relevant variables occurred were generally low (0.3–11.9%). As such, the changes described above might not have been practically meaningful. In addition, the main effect of time on observer-rated level of audiologist counselling skills (using the CCS) was not significant ($F[2] = 0.40$, $p = 0.674$, partial $\eta^2 = 0.048$).

Table 3. Audiologist behaviour and counselling scores across time.

	Baseline (N = 10)			*1-month follow-up (N = 9)*			*6-month follow-up (N = 10)*		
		Min.	*Max.*		*Min.*	*Max.*		*Min.*	*Max.*
Average percentage frequency of audiologist behaviour (%)[a]									
Irrelevant conversation/small talk	22.5	6	53	31.0	18	56	37.3	10	86
General assessment	75.0	45	87	74.6	51	93	67.9	14	88
Education	37.7	11	72	41.2	23	59	28.7	0	55
Assessing psychological variables	0.4	0	2	0.9	0	4	0.4	0	2
Reflection	9.1	0	21	11.9	0	25	10.3	0	29
Clarifying treatment goals	0.3	0	3	0.4	0	3	0.9	0	7
Planning behaviour change	3.3	0	22	1.4	0	5	1.7	0	7
Addressing psychological variables	1.8	0	8	1.8	0	9	0.6	0	3
Measures of audiologist behaviour									
Counselling skills[b] (range =10–80)	31.5	23	45	30.9	26	42	34.0	22	58
Audiologist Behaviours Rating Scale[c] (range =10–70)	48.7	35	53	–	–	–	54.8	42	65

[a]Figures are based on minute-by-minute tallies of the audiologist behaviours listed in the table (e.g. irrelevant conversation/small talk, general assessment).

[b]This is an observer-rated global score of audiologists' counselling skills, using the Counselling Competencies Scale.

[c]This is a self-report measure of audiologists' counselling skills, using the Audiologist Behaviours Rating Scale.

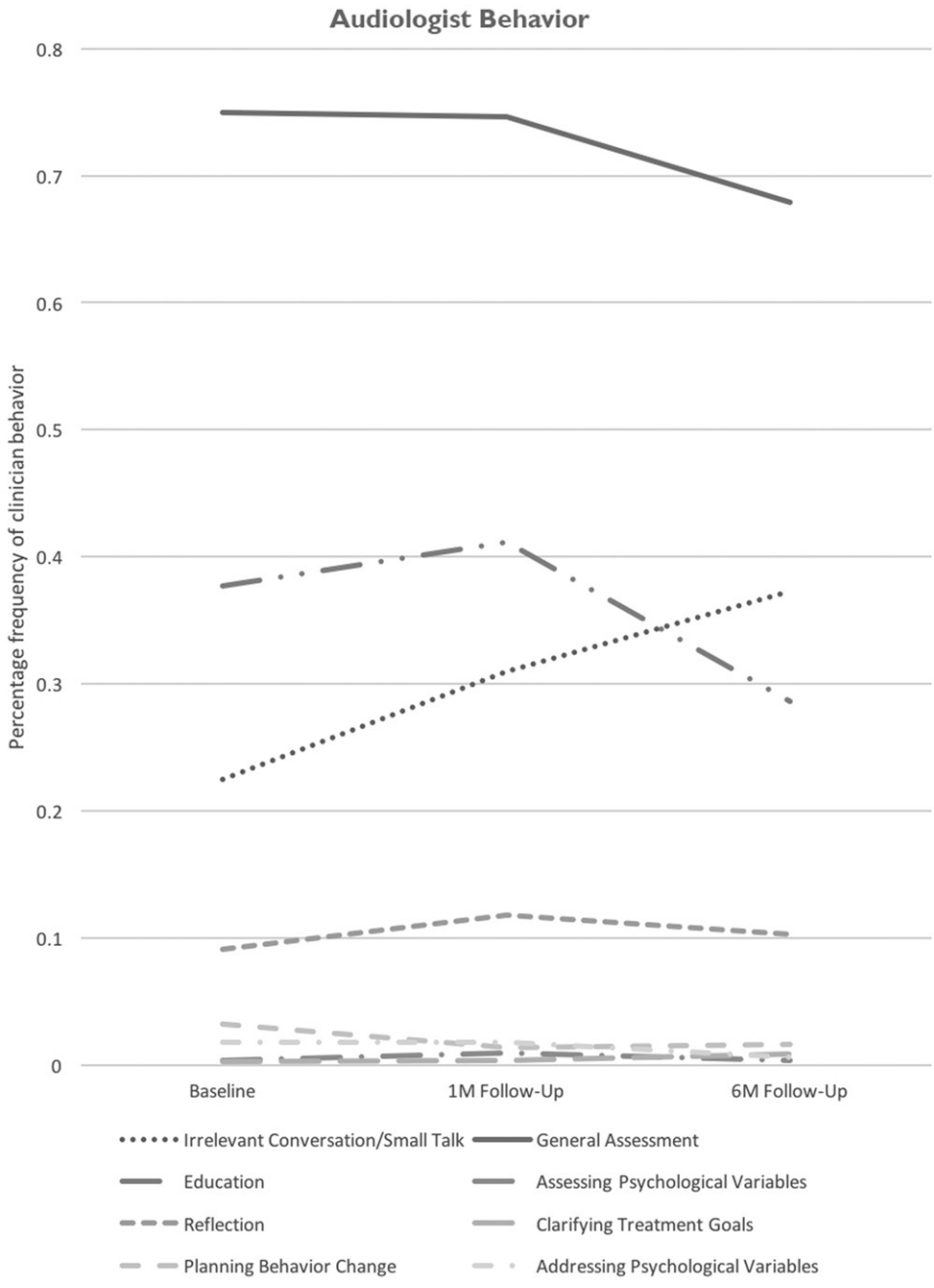

Figure 1. Percentage frequency of audiologist behaviour in session.

Audiologist percentage speaking time

A one-way ANOVA was used to test the effect of time point (pre-training, post-training, follow-up) on the PST of the *audiologist*. The analysis revealed a significant effect of time point on PST, $F(2,28) = 8.17$, $p = 0.002$, partial $\eta^2 = 0.12$. Post hoc tests, using Bonferroni correction, revealed that the PST of the audiologist was significantly greater in the pre-training condition (66.35%) compared to both the post-training condition (52.03%), $t(28) = 3.72$, $p = 0.003$, partial $\eta^2 = 0.37$, and the follow-up condition (54.09%), $t(28) = 3.16$, $p = 0.012$, partial $\eta^2 = 0.33$. There was no significant difference between the PST of the audiologist at post-training and follow-up (see Figure 2).

A series of independent *t*-tests were used to examine differences in the audiologist and client PST data. The analysis revealed that the audiologist exhibited significantly greater PST than the client in the pre-training condition, $t(18) = 6.63$, $p < 0.001$, however, there was no significant difference between the audiologist and client at post-training and follow-up. Taken together, these results demonstrate that the audiologists decreased their relative speaking time after training, to achieve relatively equal speaking time contributions with that of their client.

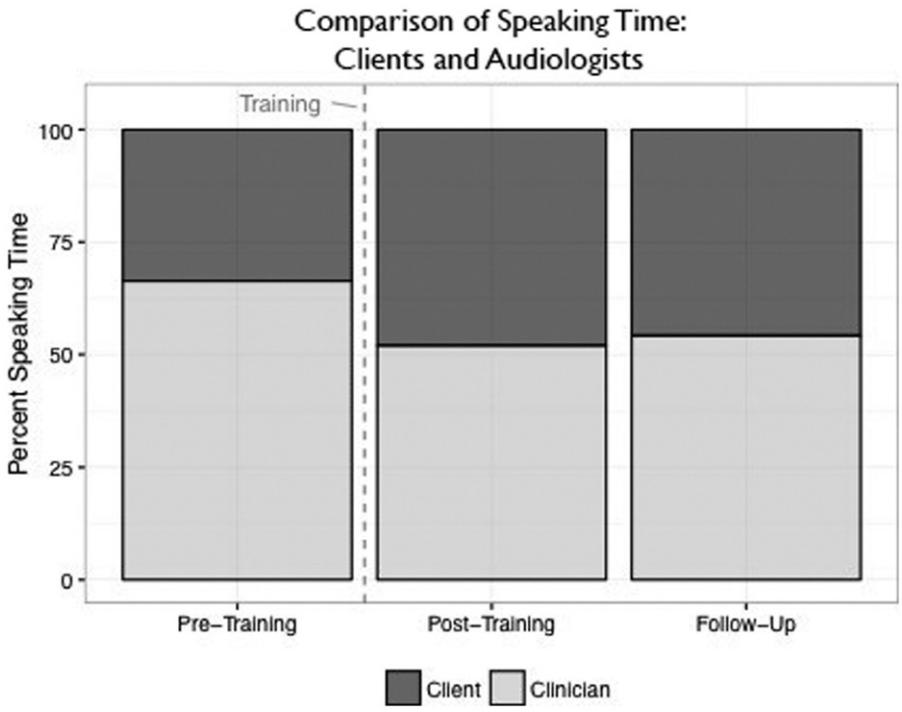

Figure 2. Comparison of speaking time.

Furthermore, this behavioural modification remained stable at follow-up.

Discussion

The present findings indicate that professionals and audiology graduate students who attended a 1-day workshop and received follow-up learning support reported significant improvement in their communication skills over time. A decrease in PST from pre-training to post-training, which was maintained at follow-up, suggested a reduction in audiologist verbal dominance after training, somewhat corroborating this result. However, observer ratings did not yield any clinically meaningful changes in audiologist behaviour for psychologically relevant variables (e.g. reflection, planning behaviour change). Furthermore, as illustrated in Figure 1, sessions continued to predominantly comprise general assessment, education, and small talk/irrelevant conversation, with less time spent on counselling variables, such as clarifying treatment goals and assessing psychological variables. Thus, although there was some progress in audiologist communication behaviour in terms of balance of speaking time, there is still room for improvement.

Our findings are consistent with the extant literature on communication patterns in audiology settings. Despite evidence on the utility of attending to the psychosocial aspects of clinical conversations, the researchers have found that audiologists tend to fail to address patients' psychosocial concerns, express empathy when appropriate, and they verbally dominate sessions (Ekberg et al, 2014; Grenness et al, 2014; Grenness et al, 2015). In addition, a similar study testing the effect of a 1-day communication skills training for audiology providers on the use of targeted communication strategies with parents of children with hearing loss found that participants reported increased awareness of their approach to addressing psychosocial aspects of counselling; however, no changes in practice were reported and most indicated a need for additional training (Muñoz et al, 2015). Part of the reason for lack of change in clinician behaviour in the present study might be the complexity of counselling skills taught within a limited timeframe, making it difficult for clinicians to readily adopt more useful counselling behaviours. Audiologists' hesitancy with addressing client emotions may also be indicative of a training gap within audiology graduate programmes aimed at helping students gain competencies to confidently and effectively use counselling skills in clinical practice.

The discrepancy between self-reported and observer-rated behaviour is worth noting, as audiologists who believe they are competently practicing counselling skills may underestimate the need for further training and performance feedback. In their systematic review, Wheeler & Richards (2007) found evidence for the positive impact of clinical supervision on skill development and self-efficacy among counsellors and therapists. As such, continued supervision and feedback may be especially necessary for audiologists to better monitor their own competencies as well as more effectively practice their communication behaviour. Furthermore, a recent survey of paediatric audiologists found that there was a desire for training in counselling skills, including training on how to screen for anxiety and depression (Muñoz et al, 2015), which suggests that availability or accessibility to such supervision may be the key issue, rather than audiologist motivation.

The significant decrease in relative speaking time of the audiologist indicates that the current intervention, the training workshop, might have had some effect on audiologist behaviour. This is an interesting behavioural modification given that speaking time was not explicitly discussed in the training workshop. Thus, it appears that a workshop on communication skills targeting the content of clinical interactions facilitated behavioural change in

terms of yielding more balanced interactions, in terms of relative time spent speaking, between audiologist and client. There is, however, no research delinerating optimal contributions of speaking time in audiologist–client interactions within appointments in the field of audiology. While it certainly makes intuitive sense that equal contributions from audiologist and client would lead to successful interactions, whereby the audiologist can give the needed information and the client can ask questions, express concerns, etc., research is needed to validate this speculation. Furthermore, it seems likely that additional, and perhaps more explicit, training is needed to foster longer-term change in this area. Indeed, our results indicate that merely appending a workshop to audiologists' professional training is insufficient to create the behavioural changes needed to adequately address patients' psychosocial concerns. Given the benefits associated with patient-centred interactions (Robinson et al, 2008), the importance of teaching communication skills to audiologists as early as possible cannot be overstated. Similar to student learning for other evidence-based audiology services, bridging of knowledge is needed between coursework and clinical experiences. Clinical supervisors must also be in tune with the critical role counselling plays in clients' functional outcomes, their own counselling practices, and if needed, recognition of the need to obtain continuing education to hone their own skills to adequately supervise students. Performance feedback was not an element included in the present study, and future research that includes this learning support mechanism is warranted to understand how to effectively support audiologists in the development of counselling skills.

Research using qualitative methods of analysis may highlight areas in which improvement is most needed (e.g. missed opportunities at relationship building, responding to subtle expressions of concern from patients) as well as areas that appear to be most malleable to circumscribed trainings. This information can then be used to design effective and efficient training programmes for audiologists. For example, audiologists who struggle with speaking too much in sessions may not need to undergo a week-long training to improve in that specific domain. In addition, future studies examining the link between improved audiologist communication behaviour and patient satisfaction and adherence could be used to evaluate the utility of counselling training procedures.

Limitations

The small sample size in the present study ($N = 10$) precluded the use of advanced statistical analyses that would have provided more information on longitudinal change, as well as clarified areas in which audiologists improved or did not improve. Participants were also self-selected and motivated to engage in the counselling training. Additionally, participants were mixed across professionals and graduate students. With numbers so low it is not possible to determine if the training differentially affected them. Participation in the continued learning sessions was limited and could have negatively affected the amount of learning that occurred. Scoring protocols from general counselling were used in this study as they are the most validated options available. A limitation to them is that they were developed for use within a counselling session and not an audiology session. Thus, their validity might be questionable in this setting. Thus, our findings might not be generalisable to audiologists who are less interested in this aspect of audiologist–client interaction.

Conclusions

Some improvement was noted in audiologists' counselling behaviour following a 1-day communication skills workshop and continued learning support. Audiologists also perceived an improvement in their counselling skills; however, changes in communication were not evident based on observer evaluation. It is evident that further training, such as increased training and performance feedback, is needed to maintain and enhance audiologist progress in the various aspects of counselling.

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