

# Noncongruence between Audiologist and Patient Preferences for Patient-Centeredness

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## Abstract

**Background:** Trends in preferences of both healthcare providers and patients to patient-centeredness have been emphasized in research. However, an understanding of the nature of preferences to patient-centeredness within the context of the audiologist–patient relationship is needed.

**Purpose:** The purpose of this study is to explore the congruence between audiologist and patient preferences for patient-centeredness.

**Research Design:** A cross-sectional survey design was used to gather data from audiologists and patients with hearing loss.

**Study Sample:** Participants included 75 audiologists and 105 consecutive patients with hearing loss.

**Data Collection and Analysis:** Participants completed the modified Patient–Practitioner Orientation Scale (PPOS) and provided selected demographic information. Data were analyzed using an independent sample *t* test to evaluate the differences between audiologist and patient congruence. Regression analysis was performed to evaluate factors contributing to preferences for patient-centeredness.

**Results:** Patients had significantly lower scores in PPOS full scale when compared to the audiologists [ $t_{(170)} = 0.78$ ;  $p \leq 0.001$ ] with a very large effect size (Cohen's  $d = 1.43$ ). Patients also had significantly lower scores when compared to the audiologists on both the sharing [ $t_{(170)} = 1.01$ ;  $p \leq 0.001$ ] and caring [ $t_{(170)} = 0.56$ ;  $p \leq 0.001$ ] subscales. Statistically significant lower scores were noted for patients when compared to audiologists on 12 items on the PPOS. No relationship between any demographic factors and preferences for patient-centeredness were found.

**Conclusions:** The current study results indicated noncongruence in preferences for patient-centeredness among audiologists and patients with hearing loss. Results point toward the need for more research considering the nature and impact of patient-centered audiology practice.

**Key Words:** audiology, education, hearing health care, patient-centered care, patient-centeredness

**Abbreviations:** PPOS = Patient–Practitioner Orientation Scale; SD = standard deviation

## INTRODUCTION

Patient-centeredness is a vital element of healthcare practice, and is thought to include audiological service provision. Improved quality and outcomes in healthcare have been linked to patient-centered service delivery (Saha et al, 2008). Trends in preferences of both healthcare providers and patients to

patient-centeredness have been emphasized in research (Krupat et al, 2000; Levinson et al, 2005). However, an understanding of the nature of patient-centeredness within the context of the audiologist–patient relationship is needed (Laplante-Lévesque et al, 2014). Therefore, the purpose of this study is to explore the congruence between patient and audiologist preferences for patient-centeredness.

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The term “patient-centered approach” refers to a service delivery model that emphasizes respect and responsiveness to individual patient needs, preferences, and values; furthermore, it ensures that clinical decisions are directed by said patient’s characteristics (IOM, 2001). This type of care is promoted when the following are considered in rehabilitation: patient motivation, readiness, and comfort; the patient as an individual; provision of functional, valuable information; and shared responsibility in decision-making (Poost-Faroosh et al, 2015). In allied health fields, an important aspect of patient-centeredness includes clinical applicability and development of rehabilitation programs that are individualized (Cott, 2004). There currently exists no universal model for achieving this individualization; however, many do so using the following: biopsychosocial perspective, “patient as a person,” shared knowledge and power, therapeutic alliance, and “clinician as a person” (Mead and Bower, 2000). When combined, these components of rehabilitation (described in the following) lead to individualization and patient-centered treatment. First, a “biopsychosocial perspective” is a broad view that attributes the outcomes for diseases or disorders to interactions of biologic, psychological, and social factors (Engel, 1981). A “patient as a person” viewpoint takes into account the psychological perspective of the patient and aims to define a patient holistically, not diagnostically (Bower, 1998). Furthermore, patient-centeredness is fostered by “shared knowledge,” “power,” and “responsibility” between patient and clinician. This shared authority encourages greater patient accountability for their health (Grol et al, 1990). Likewise, the perspective of a “therapeutic alliance” implies a patient–clinician relationship that focuses on shared perceptions, goal agreement, and emotional perspective (Mead and Bower, 2000). Finally, the viewpoint of clinician as a person considers the impact that the clinician’s personal features (e.g., emotional responses) may have on treatment. It has been recommended that clinicians acknowledge these personal, emotional, and interpersonal responses during the building of the patient–clinician relationship (Winefield et al, 1996).

A paradigm shift from a techno-centric to a patient-centric rehabilitation focus has been speculated for the audiology profession (Danermark, 2014; Taylor and Weinstein, 2015). Although patient-centeredness is considered a key value of treatment, it has been suggested that communication disorders professionals are primitive in understanding patients (Ratner, 2006). The need for evidence related to patient-centeredness has been made, and a relationship between patient-centeredness and health outcomes has been reported (Epstein and Street, 2011). In that line of inquiry, recent research has been conducted on preferences to patient-centered care in audiologists and students of speech and hearing sciences (Danermark, 2014; Laplante-Lévesque et al, 2014; Manchaiah et al, 2014; 2016; Dockens et al, 2016).

For Australian audiologists, a high preference to patient-centeredness has been found with stronger preferences to this type of service delivery associated with increasing age and years of practice (Laplante-Lévesque et al, 2014). In this same study, type of employment was also found to influence preference. For instance, audiologists who worked in community education, industrial audiology, or teaching had significantly greater preferences for patient-centeredness than their peers in other employment settings, including private practice and adult assessment.

An international study found that Portuguese, Indian, and Iranian audiologists had high preferences to patient-centeredness, but that this varied across clinical circumstances (Manchaiah et al, 2014). For instance, preferences varied when discussing whether the audiologist was responsible for choosing the topic of discussion at an appointment or whether patients should receive a full account of their disorder or condition. Additionally, significant differences in preferences were found across countries, with Portuguese audiologists exhibiting greater preferences in comparison to Indian and Iranian audiologists. When comparing this global study with that conducted by Laplante-Lévesque et al (2014), similar variation across clinical circumstances was discovered. Australian audiologists exhibited similar preference to patient-centeredness to Portuguese audiologists. It has been suggested that variations and similarities across countries may be due to differences in training and that online international training programs in audiology should consider potential cultural differences in patient-centered preferences during curriculum development (Manchaiah et al, 2014).

Preferences to patient-centeredness in undergraduate speech and hearing science students have been evaluated in an attempt to understand curriculum as a potential influence to preference. Manchaiah et al (2016) found that education in audiology influences preference such that, within a year of beginning training, undergraduate students in Portugal tended to develop high preferences to patient-centered care. This high preference remained stable across the remaining years of undergraduate study. Similarly, Dockens et al (2016) found high preferences to patient-centeredness that did not vary across a range of exposure to speech and hearing curriculum.

In summary, themes have arisen from the research of audiologists and students regarding preferences to patient-centeredness. Both students and audiologists have high preferences for patient-centered care. However, differences exist for audiologists regarding nationality and clinical situations. Still unknown is the relationship between audiologists and their patients in regard to patient-centered preferences. Other healthcare field research has revealed that greater congruence between patient and professional preference results in higher patient satisfaction (Krupat et al, 2000; Chan and

Azman, 2012). Patient-centered preferences have been evaluated in older adults attaining hearing aids (Grenness et al, 2014a). Results revealed that these adults preferred individualized care and valued involvement in the clinical process.

This study aims to determine congruence between audiologist and patient preferences for patient-centeredness.

## METHOD

### Study Design

A cross-sectional survey design was used to gather data from audiologists and patients with hearing loss. Ethical clearance was obtained from the Institutional Review Board, Office of Research and Sponsored Programs, Lamar University (no. 73415146).

### Participants and Data Collection

Audiologists attending the 2016 annual conference of the Texas Academy of Audiology were requested to complete a questionnaire. Seventy-five audiologists completed the questionnaires. There were about 110 audiologists in the two conference rooms of the Texas Academy of Audiology where the data were collected, accounting for a crude response rate of 68%. A total of 105 patients with hearing loss visiting Lamar Speech and Hearing Clinic in Beaumont, Texas, completed the questionnaires. They were recruited using a consecutive sampling method (i.e., every subject meeting the inclusion criteria who agreed to take part in the study until the study data collection terminates). The questionnaires were completed before, during (e.g., while the audiologist was making notes or performing hearing aid maintenance), or after the audiological appointment. Most of the patients (~80%) who completed the questionnaire pursued amplification or were current hearing aid users. The remaining subjects were either ineligible to pursue amplification or chose not to. The inclusion criteria included adults (aged >18 yr), diagnosed with hearing loss who had at least one interaction with an audiologist before completing the questionnaire, were interested in participating in the study, provided verbal consent, and were able to read and write in English. Questionnaires with missing data (i.e., missing responses to any Patient-Practitioner Orientation Scale [PPOS] questions) were excluded, but those with some missing demographic information were included. The patients were offered study information and had the chance to ask any questions. Participation was voluntary, and they were not given any monetary or nonmonetary incentives to participating in the study. A total of 125 consecutive patients were invited to participate in the study and 20 of them declined to participate in the study, which accounts for a response rate of 84% in the

patient sample. Both audiologist and patient groups had four missing pieces of data each on the PPOS questionnaire, which resulted in a sample of 71 audiologists and 101 adult patients with hearing loss.

### Questionnaires

Both audiologists and patients completed the modified PPOS (Laplante-Lévesque et al, 2014) and provided selected demographic information. The modified PPOS was used to measure the preference to patient-centeredness (Laplante-Lévesque et al, 2014). The full-scale PPOS includes 18 items (3 of which are reversely worded and thus reverse scored) that are divided into two subscales: “sharing subscale” and “caring subscale.” The sharing subscale indicates a patient’s belief that the clinician is willing to share power in their medical-care relationship. The caring subscale indicates a patient’s belief that the clinician cares about the patient-clinician relationship and the patient’s emotions, and has interest in the patient and not simply the disease. The PPOS uses a 6-point Likert scale with the following response categories: 1 = strongly agree, 2 = somewhat agree, 3 = agree, 4 = disagree, 5 = somewhat disagree, and 6 = strongly disagree. The modified PPOS is reported to have acceptable reliability (i.e., internal consistency) with a Cronbach’s  $\alpha$  of 0.78 (Laplante-Lévesque et al, 2014), although other psychometric properties (e.g., factor structure, test-retest reliability, floor and ceiling effect, and concurrent validity) have not been evaluated in the context of audiology.

### Data Analysis

Descriptive statistics were examined. Normality and homogeneity of variance assumptions were met. Data were analyzed using an independent sample *t* test to study the differences between audiologist and patient congruence.  $\chi^2$  analysis was performed to study the association between population and preference for patient-centeredness with categorical data. Regression analysis was performed to evaluate factors contributing to preferences for patient-centeredness among audiologists and patients. The effect size was calculated using the following formula: Cohen’s  $d = (M_1 - M_2)/SD_{pooled}$ . A significance level of 0.05 was used, although the Bonferroni corrected significance level (i.e.,  $p \leq 0.002$ ) was used for the interpretation of multiple comparisons.

## RESULTS

Table 1 presents the demographic details of the study participants. Of the audiologists surveyed, just <25% were male and slightly <75% were female, 98.6% reported graduating from university, a slight majority reported working in private settings rather than public, and 76.1% reported having religious beliefs (see

**Table 1. Demographic Details of the Participants**

	Audiologists (n = 71)	Patients (n = 101)
Age in years (Mean $\pm$ SD)	46.36 $\pm$ 12.2	64.56 $\pm$ 21.8
Gender (%)		
Male	22.5	47.5
Female	74.6	47.5
Missing information	2.8	5
Education (%)		
High school or less	—	49.5
Some college	—	32.7
University	98.6	15.8
Missing information	1.4	2
Profession (%)		
Audiology	100	—
Manual	—	22.8
Nonmanual	—	38.6
Retired	—	34.7
Missing information (or not specified)	—	4
Years of experience (Mean $\pm$ SD)	18.92 $\pm$ 11.9	NA
Work setup (%)		
Public	41.5	NA
Private	58.5	
Religious belief (%)		
Religious	76.1	92.1
Nonreligious	21.1	1
Missing information	2.8	6.9

Note: NA = Information not available.

Table 1). Of the patients who responded, the respondents were equally weighted between male and female, with slightly <50% reporting attaining high school or less education, and 92.1% reporting religious beliefs.

### Congruence between Audiologist and Patient Preferences for Patient-Centeredness

Table 2 presents mean PPOS scores and standard deviations (SDs). An independent sample *t* test was performed to study the congruence (or noncongruence) between audiologist and patient preferences for patient-centeredness. A significance level of  $p \leq 0.002$  was used for interpretations to account for multiple comparisons.

Audiologists had a mean PPOS score of 4.41 (SD = 0.5), which was compared to the patients' mean PPOS score of 3.62 (SD = 0.6). The results showed that patients had significantly lower scores in PPOS full scale when compared to the audiologists [ $t_{(170)} = 0.78$ ;  $p \leq 0.001$ ]. Sharing and caring "subscale" scores were also compared. The results showed that patients had significantly lower scores when compared to the audiologists on both the sharing [ $t_{(170)} = 1.01$ ;  $p \leq 0.001$ ] and caring [ $t_{(170)} = 0.56$ ;  $p \leq 0.001$ ] subscales. The effect size (Cohen's *d*) for the full scale was 1.43, suggesting a very large effect (Sullivan and Feinn, 2012).

As shown in Table 2, items 1, 2, 3, 4, 5, 6, 7, 9, 11, 14, 15, and 16 showed significant noncongruence with audiologists preferring a more patient-centered approach than patients.

It is important to note that although statistically significant mean differences can be observed among audiologists and patients, this may not always suggest noncongruence. For example, for item 4, the mean for patients is 4.42 and for audiologists it is 5.21. Although the difference is statistically significant, it does not mean noncongruence. This is because audiologists may be more confident about strongly disagreeing with certain statements about clinician-centeredness due to their confidence in their relevant knowledge. Hence, to test this hypothesis further, the responses to PPOS scales were categorized by grouping each question's response of 1–3 as agree and 4–6 as disagree. Figure 1 shows the response patterns for PPOS full scale and subscales. We performed  $\chi^2$  analysis on this categorical data to look at the association between population and preference for patient-centeredness. Significant association was found between response patterns of audiologists and patients and preferences for patient-centeredness for full scale [ $\chi^2 = 109.13$ ,  $df = 1$ ;  $p \leq 0.0001$ ], sharing subscale [ $\chi^2 = 81.1$ ,  $df = 1$ ;  $p \leq 0.001$ ], and caring subscale [ $\chi^2 = 44.2$ ,  $df = 1$ ;  $p \leq 0.001$ ]. These results strengthen the *t* test results to show clear noncongruence between audiologist and patient preferences for patient-centeredness.

### Factors Influencing Preferences for Patient-Centeredness

A series of linear and logistic regression analyses were performed to explore if any demographic factors (e.g., age, gender, year of experiences, and religious belief) contributed toward preference for patient-centeredness in audiologists or patients. Results showed no relationship between any demographic factors and preferences for patient-centeredness.

## DISCUSSION

This study examined congruence or noncongruence between patient and audiologist preferences for patient-centeredness. Both  $\chi^2$  and *t* test results highlighted the noncongruence between preferences for patient-centeredness among audiologists and patients, with audiologists having significantly greater preference toward patient-centeredness, with a very large effect size (Cohen's *d* = 1.43). Scores in this study are comparable to mean scores of practicing Australian audiologists (mean [M] = 4.46) (Laplante-Lévesque et al, 2014) and Portuguese audiologists (M = 4.20) (Manchaiah et al, 2014). Overall, a high preference to patient-centeredness is indicated in audiologists.

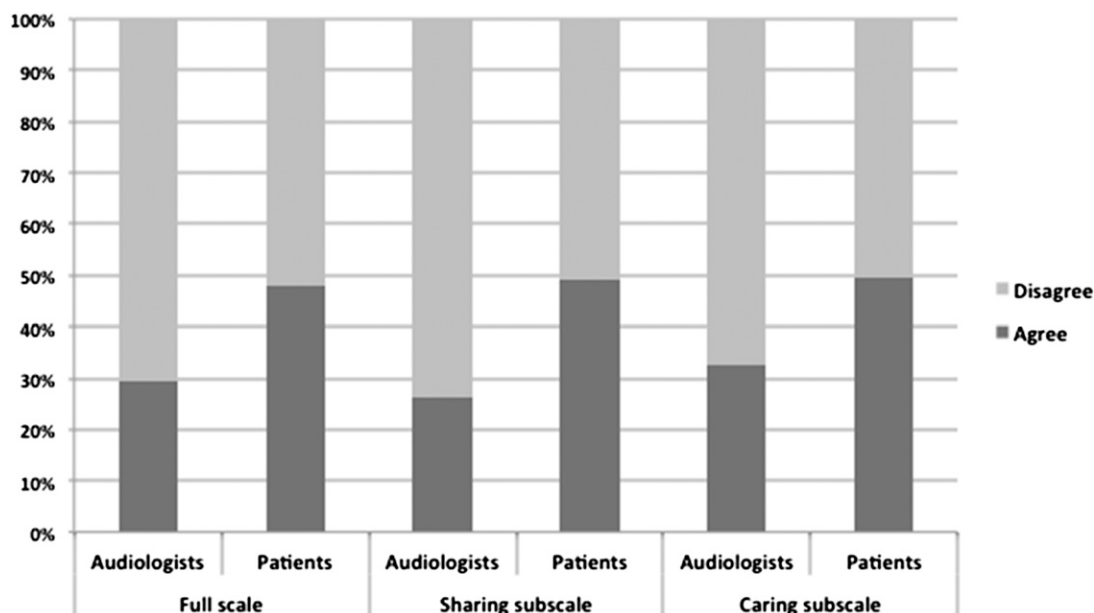
**Table 2. Preferences for Patient-Centeredness as Shown by the PPOS Items: Mean Score  $\pm$  SD, Mean Difference between Audiologists and Patients, and *t* Test Results**

PPOS Items	Audiologists (Mean $\pm$ SD)	Patients (Mean $\pm$ SD)	Mean Difference	<i>t</i>	Significance
1. The audiologist is the one who should decide what is talked about during an appointment	3.73 $\pm$ 1.4	2.94 $\pm$ 1.5	0.79	3.51	<b>0.001</b>
2. Although health care is less personal these days, this is a small price to pay for audiological advances	4.58 $\pm$ 1.2	2.59 $\pm$ 1.4	1.98	9.88	<b><math>\leq 0.001</math></b>
3. The most important part of the standard audiological appointment is the hearing test	3.93 $\pm$ 1.3	2.46 $\pm$ 1.3	1.47	7.14	<b><math>\leq 0.001</math></b>
4. It is often best for clients if they do not have the full explanation of their audiological condition	5.21 $\pm$ 1.2	4.42 $\pm$ 1.5	0.79	3.84	<b><math>\leq 0.001</math></b>
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own	4.42 $\pm$ 1.1	3.29 $\pm$ 1.8	1.1	5.12	<b><math>\leq 0.001</math></b>
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters	5.25 $\pm$ 0.9	4.58 $\pm$ 1.2	0.67	4.19	<b><math>\leq 0.001</math></b>
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important	5.45 $\pm$ 1.0	4.46 $\pm$ 1.3	0.99	5.57	<b><math>\leq 0.001</math></b>
8. Many clients continue asking questions even though they are not learning anything new	4.10 $\pm$ 1.2	3.59 $\pm$ 1.3	0.50	2.59	0.01
9. Clients should be treated as if they were partners with the audiologist, equal in power and status	4.56 $\pm$ 1.4	3.84 $\pm$ 1.3	0.72	3.52	<b>0.001</b>
10. Clients generally want reassurance rather than information about their audiological condition	3.61 $\pm$ 1.3	3.72 $\pm$ 1.4	-0.11	0.54	0.58
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success	4.70 $\pm$ 1.1	4.06 $\pm$ 1.3	0.64	3.40	<b>0.001</b>
12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust	4.28 $\pm$ 1.1	3.72 $\pm$ 1.3	0.56	2.93	0.004
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values	4.28 $\pm$ 1.3	4.11 $\pm$ 1.0	0.17	0.93	0.35
14. Most clients want to get in and out of the audiologist's office as quickly as possible	4.41 $\pm$ 1.1	3.48 $\pm$ 1.4	0.93	5.09	<b><math>\leq 0.001</math></b>
15. The client must always be aware that the audiologist is in charge	4.28 $\pm$ 1.2	2.97 $\pm$ 1.3	1.31	6.68	<b><math>\leq 0.001</math></b>
16. It is not that important to know a client's culture and background to treat the client's audiological condition	4.83 $\pm$ 1.3	3.83 $\pm$ 1.4	1.00	4.80	<b><math>\leq 0.001</math></b>
17. Humor is a major ingredient in the audiologist's management of the client	4.0 $\pm$ 1.2	3.80 $\pm$ 1.2	0.20	1.02	0.305
18. When clients look up audiological information on their own, this usually confuses more than it helps	3.69 $\pm$ 1.1	3.38 $\pm$ 1.2	0.31	1.70	0.090
Sharing subscale	4.58 $\pm$ 0.6	3.57 $\pm$ 0.8	1.01	8.40	<b><math>\leq 0.001</math></b>
Caring subscale	4.23 $\pm$ 0.5	3.67 $\pm$ 0.6	0.56	8.78	<b><math>\leq 0.001</math></b>
PPOS full scale	4.41 $\pm$ 0.5	3.62 $\pm$ 0.6	0.78	6.20	<b><math>\leq 0.001</math></b>

Notes: Score of 1 (strongly agree) = most clinician-centered; score of 6 (strongly disagree) = most patient-centered. Items 9, 13, and 17 are reversely worded items, which were reverse scored. Bonferroni-corrected *p* value of 0.002 was used for significance interpretation, and these significance levels are noted with bold type.

Of the scores that contributed most to the audiologist preferences to patient-centeredness, the mean score of 5.21 on item 4 (i.e., it is often best for clients if they do not have the full explanation of their audiological condition) indicated a strong preference to sharing knowledge with the patient. Additionally, the mean score of 5.25 on item 6 (i.e., when audiologists ask a lot of questions about a client's background, they are prying too much into personal matters) indicated audiologists

strongly consider the impact of their patient's personal factors. Finally, the mean score of 5.45 on item 7 (i.e., if audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important) indicated that audiologists prefer a relationship between clinician and patient that includes shared perception, agreement on goals, and emotional context. These scores are consistent with Laplante-Lévesque et al (2014) and Manchaiah et al (2014).



**Figure 1.** Preferences for patient-centeredness reported by audiologists and patients as shown by the PPOS, with “agree” suggesting a more clinician-centered approach and “disagree” suggesting a more patient-centered approach.

On the other hand, patients generally had relatively lower preference for patient-centeredness. The mean score of 2.94 on item 1 (i.e., the audiologist is the one who should decide what is talked about during an appointment) and 2.97 on item 15 (i.e., the client must always be aware that the audiologist is in charge) suggests that patients value the knowledge and skills of the audiologist and may defer to their professional guidance. The mean score of 2.59 on item 2 (i.e., although healthcare is less personal these days, this is a small price to pay for audiological advances) indicates that patients may expect less individualization in care in comparison to advancements. The mean score of 2.46 on item 3 (i.e., the most important part of the standard audiological appointment is the hearing test) suggests that the hearing evaluation is viewed as the vital component of an appointment by patients, indicating that diagnostic results may be deemed of greater importance.

Overall, the current study results indicate noncongruence between audiologist and patient preferences for patient-centeredness. This difference may be attributable to a number of influences, including a potential ceiling effect in many with the majority of audiologists indicating a 4 or 5 on most items, timing of questionnaire completion for patients (i.e., immediately following or even during appointments), and education and literacy levels of the patient population. Additionally, it may be that patients have predispositions about hearing healthcare. Patients may be aware of hearing loss, yet do not seek hearing healthcare, suggesting that they have established perceptions that guide their decision-making (Rawool and Keihl, 2008). However, previous studies in other areas have demonstrated that greater prefer-

ences to patient-centeredness by patients and more congruent preferences among professionals and patients have resulted in higher patient satisfaction (Krupat et al, 2000; Chan and Azman, 2012).

### Study Implications

Results of this study suggest the need for further research of patient–audiologist congruence (or noncongruence) in preferences to patient-centered care. It may be that not every patient desires to participate in a decision-making or active shared role. This has been found in other healthcare areas. Levinson et al (2005) evaluated preferences for participation in healthcare decision-making in 2,765 adults and found that most patients preferred to be offered options and asked opinions (96%), but that 52% wanted final decisions to be made by physicians, and 44% wanted to rely on physician knowledge rather than self-seeking for information.

It is possible that in an audiological context, patients also will have varying preferences for their role in the process. Furthermore, the level of control within a patient–professional relationship has been evaluated (Street et al, 2003). Shared control and “doctor control” was used to label differences in patient groups who preferred to be in somewhat equal control with physicians (shared control) and those who preferred the physician to be in charge (doctor control). Approximately half of the participating patients preferred shared control and half doctor control. It was revealed that patients who preferred shared control were more active participants in an appointment than those preferring doctor control. Street et al (2003) suggest that active participation is

needed and can be increased with greater physician partnership building.

It may be that patient-centered preferences are linked to the type of healthcare relationship. Chan and Azman (2012) reported high congruence between cancer patients and their oncologists, which was significantly associated with patient satisfaction. Patients with conditions including acquired brain injury, spinal cord injury, stroke, joint replacement, and chronic respiratory conditions reported a strong need for patient-centered rehabilitation (Cotts, 2004). Moreover, preferences to patient-centered care may vary based on the type of appointment with audiologists. For example, less patient-centered care may be desired for diagnostic evaluations or more routine hearing aid maintenance appointments than for hearing aid evaluation, selection, and fitting appointments. However, this distinction in type of appointment was not made in the current study. The nature of relationships between patients and audiologists requires further inquiry to fully understand the role and parameters of patient-centered care. As noted by Grenness et al (2014b) further research is warranted to conceptualize the nature and impact of patient-centered audiological practice. The results of this study provide further evidence of this need.

### Strengths and Limitations

Although our results are potentially supported by other healthcare research (Street et al, 2003; Levinson et al, 2005), this investigation had several limitations. First, our sample may have been biased as all audiologists were recruited from a single conference in the state of Texas. Additionally, patients were predominately older ( $\geq 65$  yr) from a single university-based clinic in Beaumont. Results might alter if a wider span of audiologists and patients were sampled. Future research should cover a broader geographic location and number and types of clinics to be more representative of these groups. Second, the sample size was not calculated before the study. However, a power analysis was performed for an independent sample *t* test using an  $\alpha$  of 0.05, a power of 0.80, and a sample size of 75 participants in each group, and the sample power was found to be sufficient (i.e., 1.0). Third, audiologists and patients were not matched. Patient and audiologist dyads should be evaluated to explicate the nature of the relationship. Fourth, aspects such as age, health literacy, cultural differences, and others could have contributed to different preferences for patient-centeredness among patients. Moreover, as mentioned earlier, querying patients about their experiences with audiology can provide greater insight into their preferences for patient-centeredness. Fifth, questionnaire administration during the audiological appointment may have resulted in some cautious (i.e., more neutral) responses to some questions (e.g., clients should rely on their audiologists' knowledge and not try to find

out about their condition on their own) as the data were anonymous and patients were given an envelope to seal their results. As a result the patients may have become concerned about compromising the quality of services for the current or any future appointments. Sixth, the specific wordings used in questions may have some bearing on the responses given by patients. For example, instead of the question "the audiologist is the one who should decide what is talked about during an appointment," the question "the discussion during an appointment should be based on the client's concerns and preferences" may elicit more congruent results. These areas need to be further evaluated to clarify contributing factors to preferences.

### CONCLUSIONS

The current study results indicated noncongruence in preferences for patient-centeredness among audiologists and patients with hearing loss, with audiologists showing stronger preferences for patient-centered approaches. Results point toward the need for more research considering the nature and impact of patient-centered audiology practice.

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### REFERENCES

- Bower P. (1998) Understanding patients: implicit personality theory and the general practitioner. *Br J Med Psychol* 71:153–163.
- Chan CMH, Azman WA. (2012) Attitudes and role orientations on doctor-patient fit and patient satisfaction in cancer care. *Singapore Med J* 53(1):52–56.
- Cott CA. (2004) Client-centred rehabilitation: Client perspectives. *Disabil Rehabil* 26:1411–1422. <http://dx.doi.org/10.1080/09638280400000237>.
- Danermark B. (2014) Patient-centred audiological rehabilitation: facilitating and hindering factors for implementation. *ENT Audiol News* 23(4):71–72.
- Dockens AL, Bellon-Harn ML, Manchaiah V. (2016) Preferences to patient-centeredness in pre-service speech and hearing sciences students: a cross-sectional study. *J Audiol Otol* 20(2):73–79.
- Engel GL. (1981) The clinical application of the biopsychosocial model. *J Med Philos* 6(2):101–124.
- Epstein RM, Street RL, Jr. (2011) The values and value of patient-centered care. *Ann Fam Med* 9:100–103.
- Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. (2014a) Patient-centred audiological rehabilitation: perspectives of older adults who own hearing aids. *Int J Audiol* 53(1, Suppl):S68–S75.
- Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. (2014b) Patient-centred care: a review for rehabilitative audiologists. *Int J Audiol* 53(1, Suppl):S60–S67.

- Grol R, de Maeseneer J, Whitfield M, Mokkink H. (1990) Disease-centred versus patient-centred attitudes: comparison of general practitioners in Belgium, Britain and the Netherlands. *Fam Pract* 7(2):100–103.
- Institute of Medicine (IOM). (2001) *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press.
- Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. (2000) The practice orientations of physicians and patients: the effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 39(1):49–59.
- Laplante-Lévesque A, Hickson L, Grenness C. (2014) An Australian survey of audiologists' preferences for patient-centredness. *Int J Audiol* 53(1, Suppl):S76–S82.
- Levinson W, Kao A, Kuby A, Thisted RA. (2005) Not all patients want to participate in decision making. A national study of public preferences. *J Gen Intern Med* 20(6):531–535.
- Manchaiah V, Gomersall PA, Tomé D, Ahmadi T, Krishna R. (2014) Audiologists' preferences for patient-centredness: a cross-sectional questionnaire study of cross-cultural differences and similarities among professionals in Portugal, India and Iran. *BMJ Open* 4(10):e005915.
- Manchaiah V, Tomé D, Dockens A, Harn M, Ganesan P. (2016) Preference to patient-centeredness in undergraduate audiology students in Portugal. *J Am Acad Audiol* 27(10):816–823.
- Mead N, Bower P. (2000) Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med* 51(7):1087–1110.
- Poost-Faroosh L, Jennings MB, Cheesman MF. (2015) Comparisons of client and clinician views of the importance of factors in client-clinician interaction in hearing aid purchase decisions. *J Am Acad Audiol* 26(3):247–259.
- Ratner MB. (2006) Evidence-based practice: An examination of ramifications for practice of speech-language pathology. *Lang Speech Hear Serv Sch* 37(4):257–267.
- Rawool V, Keihl JM. (2008) Perception of hearing status, communication, and hearing aids among socially active older individuals. *J Otolaryngol Head Neck Surg* 37(1):27–42.
- Saha S, Beach MC, Cooper LA. (2008) Patient centeredness, cultural competence and healthcare quality. *J Natl Med Assoc* 100(11):1275–1285.
- Street RL, Jr, Krupat E, Bell RA, Kravitz RL, Haidet P. (2003) Beliefs about control in the physician-patient relationship: effect on communication in medical encounters. *J Gen Intern Med* 18(8):609–616.
- Sullivan GM, Feinn R. (2012) Using effect size—or why the *P* value is not enough. *J Grad Med Educ* 4(3):279–282.
- Taylor B, Weinstein B. (2015) Moving from product-centered to patient-centric care: Expanding treatment options using decision aids. *Audiology Online* [www.audiologyonline.com/articles/moving-from-product-centered-to-14473](http://www.audiologyonline.com/articles/moving-from-product-centered-to-14473) .Accessed January 10, 2017
- Winefield H, Murrell T, Clifford J, Farmer E. (1996) The search for reliable and valid measures of patient-centredness. *Psychol Health* 11:811–824.