

BMJ Open

Audiologists' preferences for patient-centredness: Differences and similarities among professionals in Portugal, India and Iran

Journal:	<i>BMJ Open</i>
Manuscript ID:	bmjopen-2014-005915
Article Type:	Research
Date Submitted by the Author:	13-Jun-2014
Complete List of Authors:	Manchaiah, Vinaya; Anglia Ruskin University, Department of Vision and Hearing Sciences Gomersall, Philip; Anglia Ruskin University, Vision and Hearing Sciences Tomé, David; Polytechnic Institute of Porto, Audiology Ahmadi, Tayebeh; University of Social Welfare and Rehabilitation Sciences, Audiology Krishna, Rajalakshmi; University of Mysore, All India Institute of Speech and Hearing
Primary Subject Heading:	Patient-centred medicine
Secondary Subject Heading:	Ear, nose and throat/otolaryngology
Keywords:	Audiology < OTOLARYNGOLOGY, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, MEDICAL EDUCATION & TRAINING

SCHOLARONE™
Manuscripts

only

Audiologists' preferences for patient-centredness: Differences and similarities among professionals in Portugal, India and Iran

Vinaya Manchaiah^{1,2}, Philip A. Gomersall¹, David Tomé³, Tayebah Ahmadi⁴ & Rajalakshmi Krishna⁵.

1. Department of Vision and Hearing Sciences, Anglia Ruskin University, Cambridge, United Kingdom
2. Linnaeus Centre HEAD, Department of Behavioral Sciences and Learning, The Swedish Institute for Disability Research, Linköping University, Linköping, Sweden
3. Department of Audiology, School of Allied Health Sciences, Polytechnic Institute of Porto, Vila Nova de Gaia, Portugal
4. Department of Audiology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
5. All India Institute of Speech and Hearing, University of Mysore, Mysore, India

Corresponding Author: Philip A. Gomersall

Address: Department of Vision and Hearing Sciences, Coslett 204, Anglia Ruskin University, Cambridge CB1 1PT, United Kingdom

Email: phil.gomersall@anglia.ac.uk; **Tel:** +44 (0)1223 698653

Abstract

Objective: Patient-centredness has become one of the important aspects of health service delivery, however, a limited number of studies exist that focus on this concept in the domain of hearing healthcare. The objective of this study was to examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran. **Design:** The study used a cross-sectional survey design and purposive sampling to recruit audiologists' from three different countries. **Participants:** A total of 191 fully-completed responses were included in the analysis (55 from Portugal, 78 from India and 58 from Iran). **Main outcome measure:** The Patient-Practitioner Orientation Scale. **Results:** A significant difference ($p < 0.001$) was found between audiologists' preferences for patient-centredness in three countries. No significant differences were found in terms of age and duration of experience among audiologists from different countries. Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran. **Conclusion:** There are difference and similarities in audiologists' preferences for patient-centredness among countries. These findings may have implications to training professionals and also to clinical practice in terms of optimising hearing healthcare across countries.

Key Words

Patient-centeredness, Audiology, hearing healthcare, cross-culture

Summary

Article Focus

- To examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Key Message

- A significant level of difference was found between audiologists' preferences for patient-centredness in three countries.
- Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran.
- These findings may have implications to training professionals and also to clinical practice in terms of optimising hearing healthcare across countries.

Strengths and Weakness

- A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists' distributed across three countries.
- Some variables such as healthcare delivery models and educational system were not controlled for, but may have contributed to the differences and similarities noticed in audiologists preferences.

Introduction

There has been an increase in advocacy towards patients' involvement in their health and care delivery, hence the concept 'patient-centredness' has received much attention over the past few decades.¹ Patient-centredness involves aspects such as increased importance placed on patient participation, self-determination of patients in their healthcare, and creation of a power-balanced therapeutic relationship between patients and professionals.² Although there has been little consensus over the meaning of this concept universally, patient-centredness has been described with five main dimensions: (1) biopsychosocial perspective; (2) patient as a person; (3) shared power and responsibility; (4) therapeutic alliance; and (5) clinician as a person.¹ Patient-centredness has been suggested to be fundamental part of the successful management of chronic health conditions.³

Studies from various areas have suggested that the health professional's preferences towards patient-centredness is important in determining healthcare outcomes and patient satisfaction.⁴ Issues surrounding patient-centred care have also been linked to malpractice claims,⁸ and in general a preference for patient-centeredness seems to correlate well with good clinical practices.⁹ It seems therefore that professionals' preference for patient-centred care has significant value in healthcare service delivery in general. Moreover, studies have suggested that audiology patients value interaction with the clinicians. For example, a qualitative study aimed at exploring the shared decision making in adults with acquired hearing impairment suggested that patients wanted rehabilitative audiologists to hear their experiences and preferences and to tailor their interventions accordingly.¹⁰ Hence, patient-centredness is an important area in the area of rehabilitative audiology.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Audiology as a profession has undergone significant changes over last few decades. Some researchers believe that there is a paradigm shift; moving from a focus on the technological aspects of hearing healthcare to a more person-centred approach to rehabilitation.^{11 12} There is limited empirical evidence to support these observations of a shift in professionals' preferences and practices, with only a small number of published studies on patient-centredness.^{13 14} Nevertheless, studies have suggested a preference for patient-centred healthcare in various disciplines,¹⁵ including in hearing healthcare.¹⁰

Grenness et al.¹³ studied the views of older adults who own hearing aids in order to define patient-centred care specific to audiological rehabilitation. Interviews were conducted with ten older adults with hearing aids, exploring their views and the data were analysed using qualitative content analysis. The results suggested three dimensions: (1) the therapeutic relationship; (2) the players - patient and audiologist; and (3) clinical process, and an overarching theme of individualised care specific to audiological rehabilitation. The reader may refer to a recent literature review by Grenness et al.¹³ for further details on patient-centred care in relation to rehabilitative Audiology.

A recent study found that Australian audiologists had a high preference for patient-centredness.¹⁴ Moreover, demographic factors such as age, duration of work experience and employment type (i.e., public/ private) acted as influencing factors towards explaining patient-centredness. For example, older audiologists and those who had practiced longer had a significantly greater preference to patient-centredness when compared to younger and less-experienced audiologists. This is the only published study that has explored audiologists' preferences towards patient-centredness. As a consequence, it is unknown if audiologists in other countries would display similar preferences. Given that Audiology practices vary

1
2
3
4 considerably across countries,¹⁶ it would be useful to examine audiologists' preferences for
5
6 patient-centeredness across different countries which vary in terms of culture and healthcare
7
8 systems.
9

10
11
12 Cultural competence and patient-centredness are key aspects that could influence healthcare
13
14 quality.¹⁷ We hypothesise that cultural aspects can influence both patients' and providers'
15
16 preferences in healthcare and towards patient-centredness. During a recent international
17
18 seminar on '*Cross-Cultural Communication: Exploring cross-cultural differences and*
19
20 *similarities in attitudes towards hearing help-seeking and uptake of hearing aids*' (held in
21
22 Bristol, UK during February 2013), it was identified that there are few cross-cultural studies
23
24 in the area of hearing healthcare, and it was recognised that there is an immediate need for
25
26 further research in this area.¹⁸ Considering the above, we were interested in understanding the
27
28 audiologists' preference to patient-centredness across cultures.
29
30
31
32
33
34

35 The aim of the current study was to examine and compare audiologists' preferences for
36
37 patient-centredness in Portugal, India and Iran. These countries vary in terms of healthcare
38
39 system, culture and socio-economic status. However, they were chosen as they all have a
40
41 minimum educational level requirement of a Bachelor's degree education for Audiologists,
42
43 and also due to convenience in data collection.
44
45
46
47

48 **Method**

49 *Ethical Considerations*

50
51 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
52
53 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
54
55 collection in Portugal and India respectively. This kind of study did not require ethical
56
57
58
59
60

1
2
3
4 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
5
6 *Sciences* at Tehran for data collection in Iran.
7
8
9

10 ***Study Design and Participants***

11
12 The current study used a cross-sectional survey design and purposive sampling to recruit
13
14 participants. The email mailing list was obtained from university and professional
15
16 associations which consisted of audiologists distributed throughout each of the three
17
18 countries. The Patient-Practitioner Orientation Scale (PPOS) questionnaire, with some
19
20 additional demographics questions (i.e., age, gender, number of years of experience, work
21
22 set-up, country of origin and country currently practicing), was sent to 260 Audiologists (80
23
24 in Portugal, 110 in India and 70 in Iran) via email, requesting them to complete and return
25
26 back to the researcher by email. Two email reminders were sent for non-respondents after
27
28 two and four weeks respectively. As the Email ID might have contained some information
29
30 that may have helped identify the individual, the survey was not fully anonymous. In the
31
32 interest of keeping the survey short, only limited demographic information was requested and
33
34 the choice was made to consider the most important aspects based on previous studies.
35
36
37
38
39
40

41 ***Questionnaire***

42
43 The PPOS was developed by Krupat et al.¹⁹ to study physician preferences towards patient-
44
45 centredness. However, a modified version of the PPOS that has previously been used to study
46
47 audiologists' preferences towards patient-centredness was used in the current study.¹⁴ This
48
49 modified version of the PPOS was found to have acceptable internal consistency ($\alpha=0.78$).
50
51 This scale has eighteen questions which are scored on a 6-point Likert scale (1 = strongly
52
53 agree; 6 = strongly disagree). The total score ranges from 18 (most patient-centred) to 108
54
55 (most audiologist-centred), and there are two sub-scales: The first nine-item sub-scale,
56
57
58
59
60

1
2
3
4 *sharing*, reflects the extent to which the respondent believes that patients desire information
5
6 and should be part of the decision making process (e.g., patients should be treated as if they
7
8 were partners with the audiologists, equal in power and status). The other nine-item sub-
9
10 scale, *caring*, reflects the extent to which the respondent sees the patient's expectations,
11
12 feelings, and life circumstances as critical elements in the treatment process (e.g., a treatment
13
14 plan cannot succeed if it is in conflict with a patient's lifestyle or values).
15
16
17
18
19

20 An English version of the questionnaire was administered in India. Portuguese and Farsi
21
22 translated versions were used in Portugal and Iran respectively. The questionnaire translation
23
24 process was aimed at achieving different language versions of the English instrument that are
25
26 conceptually equivalent in each of the target countries/cultures. That is, the focus was on
27
28 cross-cultural and conceptual, rather than on linguistic/literal equivalence. We followed the
29
30 well accepted forward-translations and back-translations method.²⁰ This process involved
31
32 four main stages: forward translation; expert back translation; review and resolution of any
33
34 discrepancies; and pre-testing with five participants each, in both Portugal and Iran.
35
36
37
38
39

40 **Data Analysis**

41 In the first instance, descriptive statistics (i.e., mean, standard deviation), a test of normality
42
43 and a test of homogeneity of variance were performed. Mean total PPOS scores for
44
45 audiologists from three countries were compared using an independent one-way analysis of
46
47 variance (ANOVA). An alpha level of 0.01 was used to determine significance. Bonferroni
48
49 *post-hoc* analysis was performed to further examine the relationship between groups. Further,
50
51 a one-way analysis of covariance (ANCOVA) was performed with age and duration of work
52
53 experience as co-variates in order to exclude the influence of these variables on differences in
54
55 the group means.
56
57
58
59
60

Results

A total of 198 responses (response rate of 76%) were received. This included: 55 responses from Portugal (response rate of 69%); 82 responses from India (response rate of 75%); and 61 responses from Iran (response rate of 87%). However, three responses from Iran (incomplete data) and four responses from India (audiologists currently practicing in a different country) were excluded. A total of 191 responses (i.e., 73%) were included in the analysis (55 from Portugal, 78 from India and 58 from Iran). Table 1 presents the demographic information and Table 2 presents PPOS scores. ANOVA showed no difference between groups in terms of age [$F(2, 188) = 2.13, p = 0.121$] and also duration of work experience [$F(2, 188) = 1.16, p = 0.313$].

[Table 1 near here]

[Table 2 near here]

Data for both full-scale and subscales were found to be normally distributed (based on Kolmogorov-Smirnov test and visual examination of histograms). Homogeneity of variances (based on Levene's test) was found for *caring* and *total mean* ($p = 0.625$ and 0.129 respectively) and not for *sharing* ($p = 0.020$). Since our data were found to be normally distributed, we elected to use ANOVA for our analysis, despite the fact that homogeneity of variances could not be assumed for the *sharing* subscale. A robust procedures (Welch and Brown-Forsythe) test was performed to check ANOVA findings (see Table 3), which indicated the same significant differences between group means ($p < 0.001$ in all cases).

[Table 3 near here]

1
2
3
4 The PPOS mean scores were tested for differences between countries using a one way
5
6 between-subjects ANOVA (see Table 4). A significant result was found for *sharing* subscale
7
8 [$F(2, 188) = 39.76$], *caring* subscale [$F(2, 188) = 24.61$] and the *full* scale [$F(2, 188) =$
9
10 42.49]. Further, Bonferroni *post-hoc* test showed that the difference between Portugal and
11
12 India and also Portugal and Iran were significant for *sharing* subscale, *caring* subscale and
13
14 *full* scale ($p = 0.001, 0.001$ and 0.001 respectively). However, the difference between India
15
16 and Iran were not statistically significant for *sharing* subscale, *caring* subscale and *full* scale
17
18 ($p = 0.171, 0.841$ and 1.0 respectively).
19
20
21
22
23
24

25 [Table 4 near here]
26
27

28 These results strongly suggest that there are some differences and some similarities in
29
30 audiologists' preferences towards patient-centredness from different countries (see Figure 1).
31
32 Audiologists in Portugal had significantly greater preference for patient-centredness when
33
34 compared to audiologists in India and Iran whose preferences did not differ much.
35
36
37
38
39

40 [Figure 1 near here]
41
42
43

44 Whilst no significant differences were observed between the populations with respect to age
45
46 and experience, this does not exclude some possible influence of these variables on the data.
47
48 To exclude this, we elected to include these variables as covariates, and assess if this had an
49
50 influence on the main effect observed: The data met the necessary assumptions (i.e., linearity,
51
52 homoscedasticity and homogeneity of regression slopes) and the ANCOVA results with age
53
54 and duration of work experience as covariates and PPOS scores as dependent variable gave
55
56 results consistent with the ANOVA, with a significant main effect for the full scale and
57
58
59
60

1
2
3
4 subscales, and with no significant interaction effect seen. This suggests that difference exists
5
6 between the groups in preference for patient-centredness, even after accounting for age and
7
8 duration of work experience.
9

10 11 12 13 **Discussion**

14
15 This study examined and compared audiologists' preferences for patient-centredness in
16
17 Portugal, India and Iran. The PPOS scores indicate the self-reported preference for aspects of
18
19 patient-centredness. The study results, as expected, suggest some differences and some
20
21 similarities in preferences for patient-centredness among audiologists from Portugal ($M =$
22
23 4.2; $SD = 0.5$), India ($M = 3.5$; $SD = 0.6$) and Iran ($M = 3.4$; $SD = 0.4$). Generally,
24
25 audiologists' in Portugal had a high preference for patient-centredness, when compared to
26
27 audiologists in India and Iran. Moreover, a recent study found that Australian audiologists¹⁴
28
29 have high preference for patient-centredness ($M = 4.46$; $SD = 0.52$), which is similar to
30
31 Portugal audiologists' preferences reported in the current study.
32
33
34
35
36
37

38 From examination of the responses to each item it appears that audiologists' preferences for
39
40 patient-centredness seem to vary from one situation to other situation. For example, mean
41
42 PPOS score 2.4 in *item 1* when compared to 4.8 in *item 7* (see Table 2). Similar results have
43
44 been reported in a recent Australian study.¹⁴ Moreover, the trend for higher PPOS scores
45
46 provided by audiologists from Portugal compared to their peers from India and Iran, was true
47
48 for almost all questionnaire *items* when analysed individually. This suggests that the
49
50 differences in preference for patient centredness are consistent across a variety of situations.
51
52
53
54

55 Studies from other disciplines have shown that the PPOS scores indicating preference for
56
57 patient-centredness can vary among professionals in different countries. For example,
58
59
60

1
2
3
4 medical practitioners' mean PPOS scores of 4.8 in the USA,⁴ compared to 3.3 in Greece.²¹
5
6 Moreover, the differences in PPOS scores have also been observed across medical
7
8 specialists.⁵ For example, general practitioners and oncology physicians had higher PPOS
9
10 mean scores (i.e., 4.3 and 5.0 respectively) when compared with physicians with a surgical
11
12 background (i.e., 2.9). Thus it appears that the training route and specific duties of the
13
14 professional could be considered as factors in determining patient-centred practice, as could
15
16 the local culture (see later discussion).
17
18
19
20

21
22 Other posited potential influences on audiologists' preferences for patient centredness are
23
24 age, duration of work experience and employment type.¹⁴ In the current study no significant
25
26 differences existed between groups in terms of age and duration of work experience. The
27
28 distribution of audiologists among different areas of employment was broadly similar
29
30 between countries. However, differences were noted in terms of participants' gender between
31
32 countries. The estimates of male/female ratio practicing in Audiology in these countries, as
33
34 indicated by the professional bodies, are 1:4, 1:2 and 1:2 in Portugal, India and Iran
35
36 respectively. The current study sample had a similar gender pattern of audiologists even
37
38 though not exactly matching these ratios. Gender has been found to influence the
39
40 practitioners' preference for patient-centredness with women displaying a high preference to
41
42 patient-centredness than male counterparts,^{22 23} although it was not a significant factor for
43
44 audiologists preferences for patient-centred in a large scale Australian study.¹⁴ Hence, further
45
46 exploration of a gender effect in preference for patient-centredness is necessary in future
47
48 studies.
49
50
51
52
53
54

55 The local healthcare system, national culture, organisational-related factors (see Grenness et
56
57 al.²), ethnicity²⁴ and cross-cultural aspects²⁵ as indicated in studies from other areas may have
58
59
60

1
2
3
4 contributed to the differences and similarities noted in the current study results. We
5
6 hypothesise that one of the main contributing factors could be the 'culture'. Geert Hofstede
7
8 defines culture as '*the collective programming of the mind distinguishing the members of one*
9
10 *group or category of people from another*'.²⁶ Figure 2 represents Hofstede's dimensions of
11
12 national culture in Portugal, India and Iran, which include: power distance; individualism;
13
14 masculinity; uncertainty avoidance; pragmatism; and indulgence.²⁶ A greater number of
15
16 similarities are noticed between India and Iran when compared to Portugal (e.g.,
17
18 individualism, masculinity and uncertainty avoidance). These observations may provide some
19
20 explanation about how the culture may have contributed to differences and similarities in
21
22 preferences for patient-centredness noticed among different countries. This may also
23
24 highlight the need for cultural competency for professionals in order to deliver patient-
25
26 centred care.²⁷
27
28
29

30
31 **[Figure 2 near here]**
32
33
34

35 It is important to note that the current study focused on self-reported preferences for patient-
36
37 centredness and not the actual clinical behaviour. Previous studies have suggested that the
38
39 preferences for patient-centredness measured using PPOS correlate well with the actual
40
41 clinical behaviour of professionals as measured by verbal exchange between patients and
42
43 professionals.⁹ However, not much is known about the patients' preferences for hearing
44
45 healthcare services and more importantly for 'patient-centred healthcare' within these
46
47 countries. Further studies with a qualitative design may help explore these aspects.
48
49
50

51 52 53 ***Study Implications and Future Directions*** 54

55 Patient-centredness is important in healthcare as it is linked to patient-outcomes such as
56
57 increased satisfaction, adherence and health outcomes^{28 29} and also to perceived quality of
58
59
60

1
2
3
4 service delivery.¹⁷ Considering that there is evidence that rehabilitative Audiology patients
5
6 also prefer patient-centred care,¹⁰ this concept has direct clinical implications in hearing
7
8 healthcare.
9

10
11
12 The current study reports some interesting findings about audiologists' preference to patient-
13 centredness in different countries. Extrapolating from the above discussion, we may suggest
14 that the patients in Portugal may have better outcomes when compared to patients in India
15 and Iran as the Portugal audiologists had high preference for patient-centredness when
16 compared to audiologists in India and Iran. However, it might be more appropriate to study
17 patient-centredness of professionals in congruence with patients.⁴ For example, although the
18 mean scores in India and Iran were much less when compared to Portugal, if the patients in
19 India and Iran have similar preferences for patient-centredness as the professionals then, the
20 care delivery is likely to meet patients' expectations. Further, it would be useful and
21 important to understand how the concept of patient-centredness is understood and valued by
22 both professionals and patients in different countries. If future studies (focussing on both
23 professionals and patients) suggest marked differences, similar to those demonstrated here, it
24 may be necessary to reconceptualise the principle of patient-centredness.
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42

43
44 Given that patient-centredness has been found to be an important factor in patient satisfaction
45 and outcomes, at least in some countries, and since it has been suggested that clinicians can
46 learn to become patient-centred,³⁰ it may be necessary to include such concepts in training
47 programmes, particularly in cases where practitioners demonstrate a significantly lower
48 preference towards patient-centredness than their patients. Moreover, future studies may also
49 focus on understanding the differences and similarities in preferences towards patient-
50 centredness among sub-cultures within the same country (e.g., different ethnic groups). Such
51
52
53
54
55
56
57
58
59
60

1
2
3
4 studies may shed some light into arguments of researchers who have been advocating the
5
6 need for cultural competence in the delivery of healthcare services.³¹ Moreover, this may
7
8 have consequences for the increasingly international Audiology workforce,¹⁶ both in terms of
9
10 the migration of audiologists to other countries for better job prospects and the provision of
11
12 distance-learning models of education. Overall, this information may highlight the need for
13
14 optimising hearing healthcare globally.
15
16
17
18
19

20 ***Strengths and Limitations***

21
22 A response rate of 76% was obtained for this questionnaire-based study and there was
23
24 diversity in the data from audiologists' distributed across three countries. Nevertheless, the
25
26 study has some limitations. For example, aspects such as healthcare delivery models and
27
28 educational system were not controlled for, but may have contributed to the differences and
29
30 similarities noticed in audiologists preferences. However, there was a reasonable spread of
31
32 audiologist practicing in public and private Audiology clinics, and audiologists in all three
33
34 countries were trained to a minimum standard of a Bachelor's degree. A relatively small
35
36 sample size and lack of anonymity in data collection were also limitations of the current
37
38 study.
39
40
41
42
43

44 **Conclusion**

45
46 The data described here are the first in hearing healthcare to demonstrate specific differences
47
48 and similarities in audiologists' preferences for patient-centeredness across countries. Various
49
50 factors such as gender, healthcare system, organisational-related factors, ethnicity and cross-
51
52 cultural aspects may have contributed to these differences and similarities noticed. These
53
54 findings may have implications to training professionals and also to clinical practice in terms
55
56 of optimising hearing healthcare across countries.
57
58
59
60

Acknowledgements

We gratefully acknowledge Professors Edward Krupat and Louise Hickson for allowing us to use the modified version of the PPOS.

Contributors

VM - Contributed to most parts of the work including data collection, analysis and writing;

PG - Contributed to data analysis, interpretation and write up; DT - Contributed to data collection and write up; TA - Contributed to data collection and write up; KR - Contributed to data collection and write up.

Funding

No funding was received to conduct this study.

Ethical Approval

Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data collection in Portugal and India respectively. This kind of study did not require ethical approval under the *Department of Audiology, University of Social Welfare and Rehabilitation Sciences* at Tehran for data collection in Iran.

Data Sharing

No additional data are available.

Conflict of interests

None.

References

1. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med* 2000;51:1087-1110.
2. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centredness care: A review for rehabilitative audiologists. *Int J Audiol* 2014;53:S60-67.
3. Michie S, Miles J, Weinman J. Patient-centredness in illness: What is it and does it matter?. *Patient Educ Couns* 2003;51:197-206.
4. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice orientations of physicians and patients: the effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 2000;39:49-59.
5. Chan CMH, Azman WA. Attitudes and role orientation on doctor-patient fit and patient satisfaction in cancer care. *Singapore Med J* 2012;53(1):52-56.
6. Hogden A, Greenfield D, Nugus P, Kiernan MC. Engaging in patient decision-making in multidisciplinary care for amyotrophic lateral sclerosis: the views of health professionals. *Patient Prefer Adher* 2012;6:691-701.
7. Umar N, Schollgen I, Terris DD. It is not always about gains: utilities and disutilities associated with treatment features in patients with moderate-to-severe psoriasis. *Patient Prefer Adher* 2012;6:187-184.
8. Levinson W, Roter D, Mullooly J, Frankel R. Physician-patient communication: The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;277:553-559.

- 1
2
3
4 9. Shaw WS, Woiszwillo MJ, Krupat E. Further validation of the Patient-Practitioner
5
6 Orientation Scale (PPOS) from recorded visits for back pain. *Patient Educ Couns*
7
8 2012;89:288-291.
9
- 10
11 10. Laplante-Lévesque A, Hickson L, Worrall L. A qualitative study of shared decision
12
13 making in rehabilitative audiology. *J Acad Rehabil Audiol* 2011;43:27-43.
14
- 15
16 11. Sweetow RW, Davis A, Hickson L. Paradigm shift in audiology education. *Audiology*
17
18 *Today* 2010;Sept/Oct:32-35.
19
- 20
21 12. Hickson L. Defining a parading shift. *Sem Hear* 2012;33:3-8.
22
- 23
24 13. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centred
25
26 audiological rehabilitation: Perspectives of older adults who own hearing aids. *Int J*
27
28 *Audiol* 2014;53:S68-75.
29
- 30
31 14. Laplante-Lévesque A, Hickson L, Grenness C. An Australian survey of audiologists'
32
33 preferences for patient-centredness. *Int J Audiol* 2014;53:S76-82.
34
- 35
36 15. Benbassat J, Pilpel D, Tidhar M. Patients' preferences for participation in clinical
37
38 decision making. A review of published survey. *Behav Med* 1998;24:81-88.
39
- 40
41 16. Goulios H, Patuzzi RB. Audiology education and practice from an international
42
43 perspective. *Int J Audiol* 2008;47:647-664.
44
- 45
46 17. Saha S, Beach MC, Cooper LA. Patient centredness, cultural competency and
47
48 healthcare quality. *J Natl Med Assoc* 2008;100(11):1275-1285.
49
- 50
51 18. Zhao F, Manchaiah V, St. Claire L, Danermark B, Jones L, Rajalakshmi K, Goodwin
52
53 R. Exploring the influence of culture on hearing help-seeking and hearing aid uptake: a
54
55 discussion paper. *Int J Audiol* Submitted.
56
- 57
58 19. Krupat E, Putnam SM, Yeager CM. The fit between doctors and patient: Can it be
59
60 measures?. *J Gen Intern Med* 1996;11:134.

- 1
2
3
4 20. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of
5 cross-cultural adaptation of self-report measures. *Spine* 2000;25(24):3186-3191.
6
7
8 21. Tsimtsiou Z, Benos A, Garyfallos AA, Hatzimouratidis D. Predictors of physicians'
9 attitudes toward sharing information with patients and addressing psychosocial needs:
10 A cross-sectional study in Greece . *Health Commun* 2012;27:257-263.
11
12
13 22. Kaplan RM, Gandek B, Greenfield S, Rogers W, Ware J. Patient and visit
14 characteristics related to physicians participatory style: Results from medical outcome
15 study. *Med Care* 1995;33:1176-1183.
16
17
18 23. Roter D, Hall J. *Doctors talking with patients, Patients talking with doctors*.
19 Westport: Auburn House, 2006.
20
21
22 24. Cooper LA, Roter D, Johnson RL, Ford DE, Steinwachs DM, et al. Patient-centred
23 communication, ratings of care, and concordance of patient and physician race. *Ann*
24 *Intern Med* 2003;139:907-915.
25
26
27 25. Al-Bawardy R, Blatt B, Al-Shohaib S, Simmens SJ. Cross-cultural comparison of the
28 patient-centredness of the hidden curriculum between a Saudi Arabia and 9 US
29 medical schools. *Med Educ Online* 2009;14:19. doi: [10.3885/meo.2009.T0000144](https://doi.org/10.3885/meo.2009.T0000144)
30
31
32 26. Hofstede Centre. National Cultural Dimensions. Available from: [http://geert-](http://geert-hofstede.com/dimensions.html)
33 [hofstede.com/dimensions.html](http://geert-hofstede.com/dimensions.html) (accessed on April 24, 2014).
34
35
36 27. Epner DE, Baile WF. Patient-centred care: the key to cultural competence. *Ann Oncol*
37 2012;23(S3):33-42.
38
39
40 28. DiMatteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical
41 treatment outcomes: A meta-analysis. *Med Care* 2002;40:794-811.
42
43
44 29. Swenson SL, Buell S, Zettler P, White M, Ruston DC. et al. Patientcentered
45 communication: Do patients really prefer it? *J Gen Intern Med* 2004;19:1069-1080.
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

- 1
2
3
4 30. Lewin S, Skea ZC, Entwistle VA, Zwarenstein M, Dick J. Interventions for providers
5 to promote a patient-centred approach in clinical consultations. *Cochrane Database*
6 *Syst Rev* 2009;1:1-60.
7
8
9
10 31. Campinha-Bacote J. The process of cultural competence in the delivery of healthcare
11 services: A model of care. *J Transcult Nurs* 2002;13(3):181-184.
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Tables

Table 1: Demographic information

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
Age in years (Mean±SD)	30.9±8.4	31.0±8.4	29.6±8.6	32.5±8.0
Gender (%)				
▪ Male	37	20	55	30
▪ Female	63	80	45	70
Work set-up (%)				
▪ Clinic public	35	23	39	41
▪ Clinic private	50	51	61	33
▪ Clinic both	12	15	0	26
▪ Education	1	2	0	0
▪ Not known	2	9	0	0
Education (%)				
▪ Bachelors	47	72	18	60
▪ Masters	48	22	74	40
▪ Doctorate	5	6	8	0
Work experience in years (Mean±SD)	7.2±8.1	7.8±8.2	6.1±8.8	8.1±6.5

Table 2: Modified patient practitioner orientation scale (PPOS): Mean scores and standard deviation

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
PPOS Items (Mean±SD)				
1. The audiologist is the one who should decide what gets talked about during an appointment.	2.4±1.1	2.4±1.2	2.3±1.2	2.5±1.2
2. Although health care is less personal these days, this is a small price to pay for audiological advances.	3.0±1.4	4.3±1.2	2.7±1.2	2.1±1.0
3. The most important part of the standard audiological appointment is the hearing test.	2.7±1.4	3.4±1.2	2.5±1.5	2.3±1.1
4. It is often best for clients if they do not have the full explanation of their audiological condition.	4.6±1.3	5.0±1.0	4.5±1.5	4.2±1.3
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own.	3.2±1.7	4.2±1.4	3.4±1.6	2.0±1.3
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters.	4.4±1.3	5.0±1.0	4.0±1.3	4.2±1.4
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important.	4.8±1.2	5.5±0.7	4.4±1.3	4.6±1.2
8. Many clients continue asking questions even though they are not learning anything new.	3.2±1.2	3.4±1.2	3.2±1.2	3.0±1.2
9. Clients should be treated as if they were partners with the audiologist, equal in power and status.*	4.1±1.6	4.7±1.6	3.7±1.5	4.0±1.5
10. Clients generally want reassurance rather than information about their audiological condition.	2.8±1.1	3.3±1.0	2.7±1.1	2.5±1.1
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success.	4.3±1.4	4.6±1.1	3.8±1.4	4.6±1.3

12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust.	3.8±1.2	4.6±1.0	3.7±1.1	3.1±1.2
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values.*	4.7±1.1	4.7±1.1	4.6±1.0	4.7±1.2
14. Most clients want to get in and out of the audiologist's office as quickly as possible.	3.5±1.4	4.4±1.2	3.3±1.2	2.9±1.3
15. The client must always be aware that the audiologist is in charge.	2.6±1.3	2.7±1.2	2.4±1.1	2.9±1.5
16. It is not that important to know a client's culture and background in order to treat the client's audiological condition.	4.6±1.3	5.3±0.9	4.3±1.4	4.6±1.2
17. Humour is a major ingredient in the audiologist's management of the client.*	4.1±1.3	4.8±1.0	3.8±1.3	3.8±1.4
18. When clients look up audiological information on their own, this usually confuses more than it helps.	2.9±1.3	2.6±1.0	2.8±1.4	3.4±1.3
PPOS Scales (Mean±SD)				
▪ Full scale	3.6±0.6	4.2±0.5	3.5±0.6	3.4±0.4
▪ Sharing subscale	3.6±0.7	4.2±0.6	3.4±0.7	3.2±0.5
▪ Caring subscale	3.7±0.6	4.1±0.5	3.5±0.5	3.6±0.5

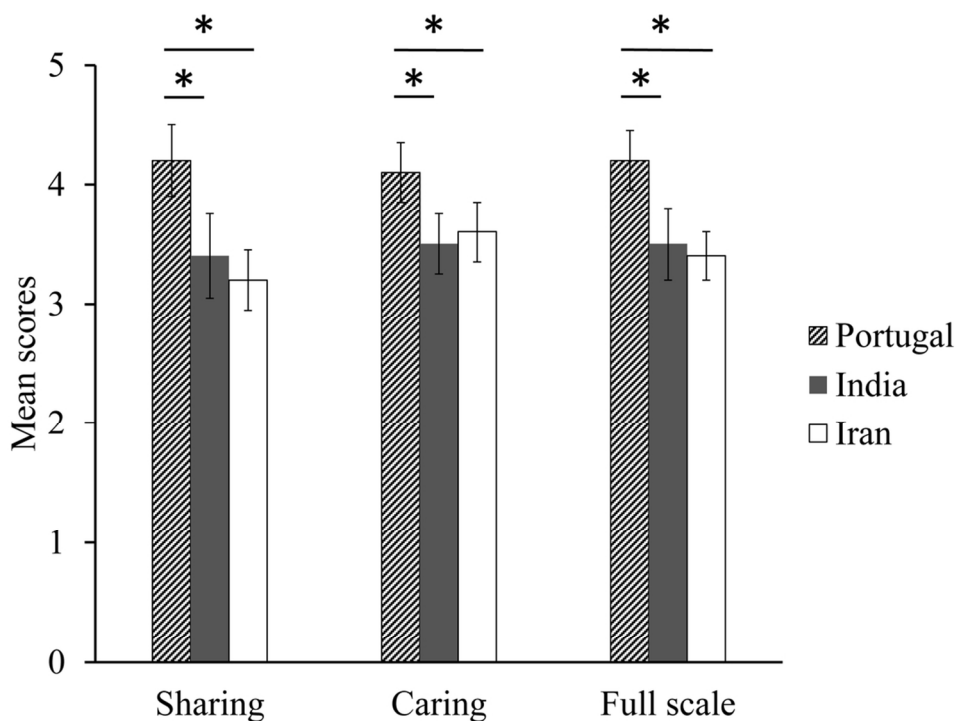
Note: Score of 1 (strongly agree) = most clinician-centred; Score of 6 (strongly disagree) = most patient-centred. Items 9, 13 and 17 (*) are reversely worded items which were reverse scored.

Table 3: Robust tests of equality of means between countries

	Welch			Brown-Forsythe		
	Degree of freedom	F-test	P	Degree of freedom	F-test	P
Sharing	122.38	46.39	< 0.001	183.46	42.14	< 0.001
Caring	119.83	27.56	< 0.001	178.20	24.86	< 0.001
Full scale	122.81	47.64	< 0.001	186.33	44.78	< 0.001

Table 4: Differences in audiologists' preferences for patient-centredness between countries

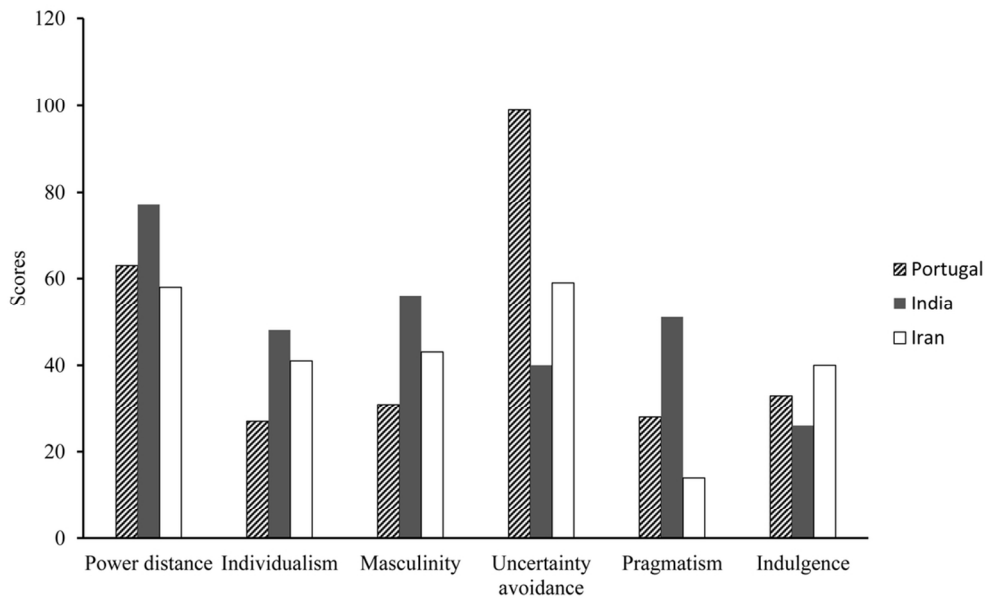
	Degree of freedom	F-test	P
Sharing	2	39.76	< 0.001
Caring	2	24.61	< 0.001
Full scale	2	42.49	< 0.001



Scores for the 'Sharing' and 'Caring' subscales and the Full scale averaged across respondents for the PPOS questionnaire completed by Audiologists' in Portugal, India and Iran. Error bars represent 1 standard deviation:
102x76mm (300 x 300 DPI)

Peer Review Only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Scores (y-axis) measured for Hofstede's dimensions of national culture (x-axis) in Portugal, India and Iran.
99x61mm (300 x 300 DPI)

Review only

STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*
Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2 & 3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4 – 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7 – 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7 - 8
Bias	9	Describe any efforts to address potential sources of bias	7 & 15
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	NA
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	9
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9 & 21
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	9 - 11
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9 - 11
		(b) Report category boundaries when continuous variables were categorized	9 - 11
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	9 - 11
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9 - 11
Discussion			
Key results	18	Summarise key results with reference to study objectives	11 - 13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13 - 15
Generalisability	21	Discuss the generalisability (external validity) of the study results	13 - 15
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	16

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Audiologists' preferences for patient-centredness: A cross-sectional questionnaire study of cross-cultural differences and similarities among professionals in Portugal, India and Iran

Journal:	<i>BMJ Open</i>
Manuscript ID:	bmjopen-2014-005915.R1
Article Type:	Research
Date Submitted by the Author:	26-Jul-2014
Complete List of Authors:	Manchaiah, Vinaya; Anglia Ruskin University, Department of Vision and Hearing Sciences Gomersall, Philip; Anglia Ruskin University, Department of Vision and Hearing Sciences Tomé, David; Polytechnic Institute of Porto, Audiology Ahmadi, Tayebeh; University of Social Welfare and Rehabilitation Sciences, Audiology Krishna, Rajalakshmi; University of Mysore, All India Institute of Speech and Hearing
Primary Subject Heading:	Patient-centred medicine
Secondary Subject Heading:	Ear, nose and throat/otolaryngology
Keywords:	Audiology < OTOLARYNGOLOGY, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, MEDICAL EDUCATION & TRAINING

SCHOLARONE™
Manuscripts

1
2
3
4 **Audiologists' preferences for patient-centredness: A cross-**
5
6
7 **sectional questionnaire study of cross-cultural differences and**
8
9
10 **similarities among professionals in Portugal, India and Iran**
11
12
13

14 **Vinaya Manchaiah^{1,2}, Philip A. Gomersall¹, David Tomé³, Tayebeh Ahmadi⁴ &**
15 **Rajalakshmi Krishna⁵**
16
17

- 18
19
20 1. Department of Vision and Hearing Sciences, Anglia Ruskin University, Cambridge,
21 United Kingdom
22
23 2. Linnaeus Centre HEAD, Department of Behavioral Sciences and Learning, The
24 Swedish Institute for Disability Research, Linköping University, Linköping, Sweden
25
26 3. Department of Audiology, School of Allied Health Sciences, Polytechnic Institute of
27 Porto, Vila Nova de Gaia, Portugal
28
29 4. Department of Audiology, University of Social Welfare and Rehabilitation Sciences,
30 Tehran, Iran
31
32 5. All India Institute of Speech and Hearing, University of Mysore, Mysore, India
33
34
35
36
37
38
39
40
41

42 **Corresponding Author:** Philip A. Gomersall

43
44 **Address:** Department of Vision and Hearing Sciences, Coslett 204, Anglia Ruskin
45 University, Cambridge CB1 1PT, United Kingdom
46

47
48 **Email:** phil.gomersall@anglia.ac.uk; **Tel:** +44 (0)1223 698653
49

50
51 **Key Words**

52
53 Patient-centeredness, Audiology, hearing healthcare, cross-culture
54
55
56
57
58
59
60

Abstract

Objective: Patient-centredness has become one of the important aspects of health service delivery, however, a limited number of studies exist that focus on this concept in the domain of hearing healthcare. The objective of this study was to examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Design: The study used a cross-sectional survey design with audiologists recruited from three different countries.

Participants: A total of 191 fully-completed responses were included in the analysis (55 from Portugal, 78 from India and 58 from Iran).

Main outcome measure: The Patient-Practitioner Orientation Scale.

Results: Patient-Practitioner Orientation Scale mean scores suggest that Audiologists have a preference for patient-centredness (i.e., mean of 3.6 in 5 point scale). However, marked differences were observed between specific PPOS items suggesting these preferences vary across clinical situations. A significant level of difference ($p < 0.001$) was found between audiologists' preferences for patient-centredness in three countries. Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran, although no significant differences were found in terms of age and duration of experience among these sample populations.

Conclusion: There are differences and similarities in audiologists' preferences for patient-centredness among countries. These findings may have implications for the training of professionals and also for clinical practice in terms of optimising hearing healthcare across countries.

Summary

Article Focus

- To examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Key Message

- A significant level of difference was found between audiologists' preferences for patient-centredness in three countries.
- Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran.
- These findings may have implications for the training of professionals and for clinical practice in terms of optimising hearing healthcare across countries.

Strengths and Weakness

- A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists distributed across three countries.
- Some variables such as healthcare delivery models and educational system were not controlled for, but may have contributed to the differences and similarities noticed in audiologists preferences.
- A sampling bias may have been present, since audiologists with particular preferences may have been more inclined to respond to the questionnaire.
- The fact that identifiable information may have been present in the emailed responses had the potential to influence/discourage an individual's response.

Introduction

There has been an increase in advocacy towards patients' involvement in their health and care delivery, hence the concept 'patient-centredness' has received much attention over the past few decades.¹ Patient-centredness involves aspects such as increased importance placed on patient participation, self-determination of patients in their healthcare, and the creation of a power-balanced therapeutic relationship between patients and professionals.² Although there has been little consensus over the meaning of this concept universally, patient-centredness has been described with five main dimensions: (1) biopsychosocial perspective; (2) patient as a person; (3) shared power and responsibility; (4) therapeutic alliance; and (5) clinician as a person.¹ Patient-centredness has been suggested to be fundamental part of the successful management of chronic health conditions.³

Studies from a variety of areas of healthcare have suggested that the health professional's preferences towards patient-centredness is important in determining outcomes and patient satisfaction.⁴⁻⁷ Issues surrounding patient-centred care have also been linked to malpractice claims,⁸ and in general a preference for patient-centeredness correlates well with good clinical practices.⁹

The profession of Audiology is particularly interesting in this context since, traditionally, there has been a focus on the technological aspects of hearing healthcare. Some researchers believe that the last two decades has seen a paradigm shift; moving from a focus on the technological aspects of hearing healthcare to a more person-centred approach to rehabilitation.^{10 11} The empirical evidence for this shift is limited, with only a small number of published studies on patient-centredness specific to audiology.^{12 13} Laplante-Lévesque et al

1
2
3
4 conducted a qualitative study, exploring shared decision making in adults with acquired
5 hearing impairment, which suggested that patients wanted rehabilitative audiologists to hear
6 their experiences and preferences and to tailor their interventions accordingly.¹⁴ Poost-
7
8
9
10
11 Foroosh et al.¹⁵ studied the factors in the interaction between Audiologists and clients in the
12 decision to purchase a hearing aid. The study asked twelve clients with acquired hearing loss
13 and ten audiologists, from both University and private practices, to supply statements
14 regarding which clinician-patient factors they felt influenced the decision to purchase a
15 hearing aid. Client-centred interaction was identified as one of two major themes in the
16 responses provided (client-empowerment was the other).
17
18
19
20
21
22
23

24
25
26 Grenness et al.¹² studied the views of older adults who own hearing aids in order to further
27 define patient-centred care in the context of audiological rehabilitation. Interviews were
28 conducted with ten older adults with hearing aids, exploring their views and the data were
29 analysed using qualitative content analysis. The results suggested three dimensions: (1) the
30 therapeutic relationship; (2) the players - patient and audiologist; and (3) the clinical process,
31 and an overarching theme of individualised care specific to audiological rehabilitation. In
32 each case, the research discussed above demonstrates the significant value that patients place
33 in the relationship with the clinician. The reader is referred to a recent literature review by
34 Grenness et al.² for further details on patient-centred care in relation to rehabilitative
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Audiology.

51
52
53
54
55
56
57
58
59
60
A recent study focussing specifically on Audiologists in Australia found a high preference
for patient-centredness.¹³ Moreover, demographic factors such as age, duration of work
experience and employment type (i.e., public/ private) acted as influencing factors towards
explaining patient-centredness. For example, older audiologists and those who had practiced

1
2
3
4 longer had a significantly greater preference to patient-centredness when compared to
5
6 younger and less-experienced audiologists. This is the only published study that has explicitly
7
8 explored audiologists' preferences towards patient-centredness. As a consequence, it is
9
10 unknown if audiologists in other countries would display similar preferences. Given that
11
12 Audiology practices vary considerably across countries,¹⁶ it would be useful to examine
13
14 audiologists' preferences for patient-centeredness across different countries which vary in
15
16 terms of culture and healthcare systems. Moreover; it has been highlighted in general that
17
18 there are few cross-cultural studies in the area of hearing healthcare, highlighting the need for
19
20 such studies.
21
22

23
24 Cultural competence is a key aspect that is known to influence healthcare quality^{17 18}. We
25
26 hypothesise that cultural aspects can influence both patients' and providers' preferences in
27
28 healthcare and towards patient-centredness. We were particularly interested in understanding
29
30 and comparing the preferences for patient-centeredness among Audiologists in European and
31
32 Asian countries. Asian countries, compared to European countries, are considered to be more
33
34 collectivist societies, with a greater emphasis placed on the role of the individual as part of a
35
36 local group and/or community with less of a tendency to focus on 'looking after oneself'.
37
38 Further to this, it has been posited that Asian countries have a tendency towards a high
39
40 'power distance' within levels of organisations – this reflects how willing the less powerful
41
42 members of an organisation or group are to accept an unequal distribution of power. In the
43
44 context of patient-centredness such cultural effects might result in different opinions towards
45
46 a hierarchical 'paternalistic' approach to audiological management, versus a patient centred-
47
48 approach.
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 The aim of the current study was to examine and compare audiologists' preferences for
5
6 patient-centredness in Portugal, India and Iran. These countries vary in terms of healthcare
7
8 system, culture and socio-economic status. However, they were chosen as they all have a
9
10 minimum educational level requirement of a Bachelor's degree education for Audiologists,
11
12 and also due to convenience in data collection.
13

14 **Method**

15 *Ethical Considerations*

16
17
18 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
19
20 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
21
22 collection in Portugal and India respectively. This kind of study did not require ethical
23
24 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
25
26 *Sciences* at Tehran for data collection in Iran.
27
28
29
30
31
32

33 *Study Design and Participants*

34
35 The current study used a cross-sectional survey design and purposive sampling to recruit
36
37 participants. The email mailing list was obtained from university and professional
38
39 associations which consisted of audiologists distributed throughout each of the three
40
41 countries. The Patient-Practitioner Orientation Scale (PPOS) questionnaire, with some
42
43 additional demographics questions (i.e., age, gender, number of years of experience, work
44
45 set-up, country of origin and country in which currently practicing), was sent to 260
46
47 Audiologists (80 in Portugal, 110 in India and 70 in Iran) via email, requesting them to
48
49 complete and return back to the researcher by email. Two email reminders were sent for non-
50
51 respondents after two and four weeks respectively. As the Email ID might have contained
52
53 some information that may have helped identify the individual, the survey was not fully
54
55 anonymous. In the interest of keeping the survey short, only limited demographic information
56
57
58
59
60

1
2
3
4 was requested and the choice was made to consider the most important aspects based on
5
6 previous studies.
7
8
9

10 **Questionnaire**

11
12 The PPOS was developed by Krupat et al.¹⁹ to study physician preferences towards patient-
13 centredness. However, a modified version of the PPOS that has previously been used to study
14 audiologists' preferences towards patient-centredness was used in the current study.¹³ This
15 modified version of the PPOS was found to have acceptable internal consistency ($\alpha=0.78$).
16
17 This scale has eighteen questions which are scored on a 6-point Likert scale (1 = strongly
18 agree; 6 = strongly disagree). The total score ranges from 18 (most patient-centred) to 108
19 (most audiologist-centred), and there are two sub-scales: The first nine-item sub-scale,
20
21 *sharing*, reflects the extent to which the respondent believes that patients desire information
22 and should be part of the decision making process (e.g., patients should be treated as if they
23 were partners with the audiologists, equal in power and status). The other nine-item sub-
24 scale, *caring*, reflects the extent to which the respondent sees the patient's expectations,
25 feelings, and life circumstances as critical elements in the treatment process (e.g., a treatment
26 plan cannot succeed if it is in conflict with a patient's lifestyle or values).
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43

44 An English version of the questionnaire was administered in India. Portuguese and Farsi
45 translated versions were used in Portugal and Iran respectively. The questionnaire translation
46 process was aimed at achieving different language versions of the English instrument that are
47 conceptually equivalent in each of the target countries/cultures. That is, the focus was on
48 cross-cultural and conceptual, rather than on linguistic/literal equivalence. We followed the
49 well accepted forward-translations and back-translations method.²⁰ This process involved
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 four main stages: forward translation; expert back translation; review and resolution of any
5
6 discrepancies; and pre-testing with five participants each, in both Portugal and Iran.
7
8
9

10 **Data Analysis**

11
12 In the first instance, descriptive statistics (i.e., mean, standard deviation), a test of normality
13
14 and a test of homogeneity of variance were performed. Mean total PPOS scores for
15
16 audiologists from three countries were compared using an independent one-way analysis of
17
18 variance (ANOVA). An alpha level of 0.01 was used to determine significance. Bonferroni
19
20 *post-hoc* analysis was performed to further examine the relationship between groups. Further,
21
22 a one-way analysis of covariance (ANCOVA) was performed with age and duration of work
23
24 experience as covariates in order to exclude the influence of these variables on the observed
25
26 differences between the group means.
27
28
29
30
31
32

33 **Results**

34
35 A total of 198 responses (response rate of 76%) were received. This included: 55 responses
36
37 from Portugal (response rate of 69%); 82 responses from India (response rate of 75%); and
38
39 61 responses from Iran (response rate of 87%). However, three responses from Iran
40
41 (incomplete data) and four responses from India (audiologists currently practicing in a
42
43 different country) were excluded. A total of 191 responses (i.e., 73%) were included in the
44
45 analysis (55 from Portugal, 78 from India and 58 from Iran). Table 1 presents the
46
47 demographic information and Table 2 presents PPOS scores. ANOVA showed no difference
48
49 between groups in terms of age [$F(2, 188) = 2.13, p = 0.121$] and also duration of work
50
51 experience [$F(2, 188) = 1.16, p = 0.313$].
52
53
54

55 [Table 1 near here]

56
57 [Table 2 near here]
58
59
60

1
2
3
4
5
6 Data for both full-scale and subscales were found to be normally distributed (based on
7
8 Kolmogorov-Smirnov test and visual examination of histograms). Homogeneity of variances
9
10 (based on Levene's test) was found for *caring* and *total mean* ($p = 0.625$ and 0.129
11
12 respectively) and not for *sharing* ($p = 0.020$). Since our data were found to be normally
13
14 distributed, we elected to use ANOVA for our analysis, despite the fact that homogeneity of
15
16 variances could not be assumed for the *sharing* subscale. A robust procedures (Welch and
17
18 Brown-Forsythe) test was performed to check ANOVA findings which indicated the same
19
20 significant differences between group means ($p < 0.001$ in all cases).
21
22

23
24
25
26 The PPOS mean scores from each population were analysed using a one way between-
27
28 subjects ANOVA (see Table 3). A significant result was found for *sharing* subscale [$F(2,$
29
30 $188) = 39.76$], *caring* subscale [$F(2, 188) = 24.61$] and the *full scale* [$F(2, 188) = 42.49$].
31
32 Further, *post-hoc* tests with Bonferroni correction showed that the difference between
33
34 Portugal and India and also Portugal and Iran were significant for *sharing* subscale, *caring*
35
36 subscale and *full scale* ($p = 0.001, 0.001$ and 0.001 respectively). However, the difference
37
38 between India and Iran were not statistically significant for the *sharing* subscale, *caring*
39
40 subscale and *full scale* ($p = 0.171, p=0.841$ and $p=1$ respectively).
41
42
43
44
45

46 **[Table 3 near here]**
47
48
49

50
51 These results show some differences and some similarities in audiologists' preferences
52
53 towards patient-centredness from different countries (see Figure 1). Audiologists in Portugal
54
55 had significantly greater preference for patient-centredness when compared to audiologists in
56
57 India and Iran whose preferences did not differ much.
58
59
60

[Figure 1 near here]

Whilst our sample populations were well matched, with no significant differences with respect to age and experience, this does not exclude some possible influence of these variables on the data. Therefore we elected to include these variables as covariates, and assess if this had an influence on the main effect observed: The data met the necessary assumptions (i.e., linearity, homoscedasticity and homogeneity of regression slopes) and the ANCOVA results with age and duration of work experience as covariates and PPOS scores as dependent variable gave results consistent with the ANOVA, with a significant main effect for the full scale and subscales only and no significant interaction was observed. Thus we conclude that differences exist between the responses from audiologists from these countries in preference for patient-centredness, even after accounting for age and duration of work experience.

Discussion

This study examined and compared audiologists' preferences for patient-centredness in Portugal, India and Iran. The PPOS scores indicate the self-reported preference for aspects of patient-centredness. An overall mean score greater than 3 for all three countries included suggests that there is a tendency for Audiologists to favour patient-centredness, rather than a clinician-centred approach. This is true for both *caring* and *sharing* subscales. These values can be compared to those observed across other medical specialities.⁵ For example, general practitioners and oncology physicians had higher PPOS mean scores (i.e., 4.3 and 5.0 respectively) when compared with physicians with a surgical background (i.e., 2.9). Thus it appears that the training route and specific duties of the professional could be considered as factors in determining patient-centred practice.

1
2
3
4
5
6 From examination of the responses to each item it can be seen that audiologists' preferences
7
8 for patient-centredness vary depending upon the situation described (see Table 2). There is
9
10 some grouping of item responses, for example, mean PPOS score 2.4 in *item 1* (i.e.,
11
12 audiologist is the one who should decide what gets talked about during an appointment), 2.7
13
14 in *item 2* (i.e., most important part of the standard audiological appointment is the hearing
15
16 test), 2.8 in *item 10* (i.e., clients generally want reassurance rather than information about
17
18 their audiological condition) and 2.6 in *item 15* (i.e., client must always be aware that the
19
20 audiologist is in charge). These were markedly lower than the mean PPOS scores of 4.6 in
21
22 *item 4* (i.e., it is often best for clients if they do not have the full explanation of their
23
24 audiological condition), 4.8 in *item 7* (i.e., if audiologists are truly good at diagnosis and
25
26 treatment, the way they relate to clients is not that important) and 4.7 in *item 13* (i.e., a
27
28 management plan cannot succeed if it is in conflict with a client's lifestyle or values). Similar
29
30 results have been reported in a recent Australian study.¹⁴ These observations suggest that the
31
32 preference for patient centredness is consistent across particular situations. Generally,
33
34 audiologists prefer more control during the clinical appointment and like to decide what
35
36 information has the priority of discussion and also prefer to have audiological tests as the
37
38 central focus of the clinical appointment. This maybe because of the fact that traditionally
39
40 audiological practice had a greater emphasis on technology and many audiologists followed
41
42 more of a prescriptive approach to management. However, some researchers suggest that
43
44 there is a growing trend towards audiological practice with more emphasis on client-centred
45
46 rehabilitation.^{10, 11} Therefore; it may be useful to monitor Audiologists preferences for
47
48 patient-centredness over time.

49
50 The study results suggest some country-specific differences and some similarities in
51
52 preferences for patient-centredness among audiologists from Portugal ($M = 4.2$; $SD = 0.5$),
53
54
55
56
57
58
59
60

1
2
3
4 India ($M = 3.5$; $SD = 0.6$) and Iran ($M = 3.4$; $SD = 0.4$). Generally, audiologists' in Portugal
5
6 had a high preference for patient-centredness, when compared to audiologists in India and
7
8 Iran. Moreover, a recent study found that Australian audiologists¹⁴ have high preference for
9
10 patient-centredness ($M = 4.46$; $SD = 0.52$), which is similar to Portugal audiologists'
11
12 preferences reported in the current study.
13

14
15
16
17
18 When comparing scores across countries the trend for higher PPOS scores provided by
19
20 audiologists from Portugal compared to their peers from India and Iran, was true for almost
21
22 all questionnaire items when analysed individually. However, some variations exist. For
23
24 example, scores for *item 1* (i.e., audiologist is the one who should decide what gets talked
25
26 about during an appointment), was similar among audiologists in all three countries. This
27
28 might reflect a similarity in service delivery that place restricted time allowances on clinical
29
30 session that would encourage the Audiologist to keep conversation 'on task'. Scores for *item*
31
32 *18* (i.e., when clients look up audiological information on their own, this usually confuses
33
34 more than it helps) followed the reverse trend with audiologists in India and Iran scoring
35
36 higher than audiologists in Portugal, albeit by relatively small differences in score. In this
37
38 case, the ability of the patient population to find relevant information may be related to local
39
40 factors such as internet access and language-specific information resources. *Item 2* had the
41
42 largest difference in score between Portugal and the other two countries (i.e., Although health
43
44 care is less personal these days, this is a small price to pay for audiological advances). The
45
46 responses could have been influenced by how the respondent views recent audiological
47
48 advances. Improvements in technology have occurred at different times in different countries,
49
50 and therefore it may be that audiologist's responses are reflecting their opinion on which
51
52 technological advancements they feel have helped clients, as much reflecting their opinion on
53
54
55
56
57
58
59
60

1
2
3
4 the changing personal aspect of healthcare. An example would be if the move from analogue
5
6 to digital technology was more recent for India and Iran; this may be valued more highly
7
8 against a loss of the personal involvement in healthcare than in Portugal, if this development
9
10 had occurred further in the past. .

11
12
13
14
15 Studies from other disciplines have shown that the PPOS scores indicating preference for
16
17 patient-centredness can vary among professionals in different countries. For example,
18
19 medical practitioners' mean PPOS scores of 4.8 in the USA,⁴ compared to 3.3 in Greece.²¹,
20
21

22
23
24 The key influencing factors for the differences observed are the local healthcare system,
25
26 national culture, organisational-related factors (see Grenness et al.²), ethnicity²² and cross-
27
28 cultural aspects²³ as indicated in studies from other areas. We hypothesise that one of the
29
30 main contributing factors could be the 'culture'. Geert Hofstede defines culture as '*the*
31
32 *collective programming of the mind distinguishing the members of one group or category of*
33
34 *people from another*'.²⁴ Figure 2 represents Hofstede's dimensions of national culture in
35
36 Portugal, India and Iran, which include: power distance; individualism; masculinity;
37
38 uncertainty avoidance; pragmatism; and indulgence.²⁴ A greater number of similarities are
39
40 noticed between India and Iran when compared to Portugal (e.g., individualism, masculinity
41
42 and uncertainty avoidance). These observations are consistent with a contribution of culture
43
44 to differences and similarities in preferences for patient-centredness noticed among different
45
46 countries in this study. It would also be consistent with the previously reported findings of
47
48 medical practitioners from the USA, a country with a very high score of Individualism,
49
50 compared to Greece, considered to be a collectivist culture. Given this finding, we argue that
51
52 there is a need for increased focus on cultural competency for professionals in order to
53
54 deliver patient-centred care.²⁵
55
56
57
58
59
60

[Figure 2 near here]

It is important to note that the current study focused on self-reported preferences for patient-centredness and not the actual clinical behaviour. Previous studies have suggested that the preferences for patient-centredness measured using PPOS correlate well with the actual clinical behaviour of professionals as measured by verbal exchange between patients and professionals.⁹ However, not much is known about the patients' preferences for hearing healthcare services and more importantly for 'patient-centred healthcare' within these countries. Further studies with a qualitative design may help explore these aspects. A further consideration is to what extent the clinician population will reflect the general 'culture' that is assigned to a nation- it is likely that they vary from the general population with regards educational level in addition to other socioeconomic factors, and the degree of difference is likely to be specific to the particular profession, and also country being considered. However, we also consider it unlikely that there is no influence of country-specific cultural factors on the clinician population at all.

Other potential influences on audiologists' preferences for patient centredness are age, duration of work experience and employment type.¹³ In the current study no significant differences existed between groups in terms of age and duration of work experience. The distribution of audiologists among different areas of employment was broadly similar between countries. However, differences were noted in terms of participants' gender between countries. The estimates of male/female ratio practicing in Audiology in these countries, as indicated by the professional bodies, are 1:4, 1:2 and 1:2 in Portugal, India and Iran respectively. The current study sample had a similar gender pattern of audiologists even though not exactly matching these ratios. Gender has been found to influence the

1
2
3
4 practitioners' preference for patient-centredness with women displaying a greater preference
5
6 for patient-centredness than male counterparts,^{26 27} although this was not found to be a
7
8 significant factor for audiologists' preferences for patient-centredness in a large scale
9
10 Australian study.¹³ Hence, further exploration of a gender effect in preference for patient-
11
12 centredness is necessary in future studies.

13 14 15 16 17 ***Study Implications and Future Directions***

18
19 Patient-centredness is important in healthcare as it is linked to patient-outcomes such as
20
21 increased satisfaction, adherence and health outcomes^{28 29} and also to perceived quality of
22
23 service delivery.¹⁸ Considering that there is evidence that rehabilitative Audiology patients
24
25 also prefer patient-centred care,¹⁴ this concept has direct clinical implications in hearing
26
27 healthcare.
28
29

30
31
32
33 The current study reports some interesting findings about audiologists' preference to patient-
34
35 centredness in different countries. Extrapolating from the above discussion, we may suggest
36
37 that the patients in Portugal may have better outcomes when compared to patients in India
38
39 and Iran as the Portugal audiologists had high preference for patient-centredness when
40
41 compared to audiologists in India and Iran. However, it might be more appropriate to study
42
43 patient-centredness of professionals in congruence with patients.⁴ For example, although the
44
45 mean scores in India and Iran were lower than those of Portugal, if the patients in India and
46
47 Iran have similar preferences for patient-centredness as the professionals then, the care
48
49 delivery is likely to meet patients' expectations. Further, it would be useful and important to
50
51 understand how the concept of patient-centredness is understood and valued by both
52
53 professionals and patients in different countries. If future studies (focussing on both
54
55
56
57
58
59
60

1
2
3
4 professionals and patients) suggest marked differences, similar to those demonstrated here, it
5
6 may be necessary to reconceptualise the principle of patient-centredness.
7
8
9

10 Given that patient-centredness has been found to be an important factor in patient satisfaction
11 and outcomes, at least in some countries, and since it has been suggested that clinicians can
12 learn to become patient-centred,³⁰ it may be necessary to include such concepts in training
13 programmes, particularly in cases where practitioners demonstrate a significantly lower
14 preference towards patient-centredness than their patients. Moreover, future studies may also
15 focus on understanding the differences and similarities in preferences towards patient-
16 centredness among sub-cultures within the same country (e.g., different ethnic groups). Such
17 studies may shed some light into arguments of researchers who have been advocating the
18 need for cultural competence in the delivery of healthcare services.³¹ Moreover; this may
19 have consequences for the increasingly international Audiology workforce,¹⁶ both in terms of
20 the migration of audiologists to other countries for better job prospects and the provision of
21 distance-learning models of education. Overall, this information may highlight the need for
22 optimising hearing healthcare globally.
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

41 ***Strengths and Limitations***

42
43 A response rate of 76% was obtained for this questionnaire-based study and there was
44 diversity in the data from audiologists' distributed across three countries. Nevertheless, the
45 study has some limitations. For example, aspects such as healthcare delivery models and
46 educational system were not controlled for, but may have contributed to the differences and
47 similarities noticed in audiologists preferences. However, there was a reasonable spread of
48 audiologist practicing in public and private Audiology clinics, and audiologists in all three
49 countries were trained to a minimum standard of a Bachelor's degree. A relatively small
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 sample size and lack of anonymity in data collection were also limitations of the current
5
6 study. We were aware that a sampling bias may have been present, since audiologists with
7
8 particular preferences may have been more inclined to respond to the questionnaire. The fact
9
10 that identifiable information may have been present in the emailed responses had the
11
12 potential to influence/discourage an individual's response. These biases would have been
13
14 present for all countries.
15
16
17
18
19

20 **Conclusion**

21
22 The data described here are the first in hearing healthcare to demonstrate specific differences
23
24 and similarities in audiologists' preferences for patient-centeredness across three countries.
25
26 We observed that the two countries with the most similar cultural profile had the most similar
27
28 preference level for patient-centred care. There are several factors might influence preference
29
30 for patient centred-practice, and further investigation is required in order to determine the role
31
32 of the education and healthcare system, organisational-related factors, and ethnicity in
33
34 contributing to the differences and similarities noticed. Clinician reported Patient-
35
36 centredness and the cultural aspects of the clinician and patient population are different
37
38 across countries and this may have implications for the training professionals and
39
40 implementation of clinical practice in terms of optimising hearing healthcare across countries.
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Acknowledgements

We gratefully acknowledge Professors Edward Krupat and Louise Hickson for allowing us to use the modified version of the PPOS.

Contributors

VM - Contributed to most parts of the work including data collection, analysis and writing;

PG - Contributed to data analysis, interpretation and write up; DT - Contributed to data collection and write up; TA - Contributed to data collection and write up; KR - Contributed to data collection and write up.

Funding

No funding was received to conduct this study.

Ethical Approval

Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data collection in Portugal and India respectively. This kind of study did not require ethical approval under the *Department of Audiology, University of Social Welfare and Rehabilitation Sciences* at Tehran for data collection in Iran.

Data Sharing

No additional data are available.

Conflict of interests

None.

References

1. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med* 2000;51:1087-1110.
2. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centredness care: A review for rehabilitative audiologists. *Int J Audiol* 2014;53:S60-67.
3. Michie S, Miles J, Weinman J. Patient-centredness in illness: What is it and does it matter?. *Patient Educ Couns* 2003;51:197-206.
4. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice orientations of physicians and patients: the effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 2000;39:49-59.
5. Chan CMH, Azman WA. Attitudes and role orientation of doctor-patient fit and patient satisfaction in cancer care. *Singapore Med J* 2012;53(1):52-56.
6. Hogden A, Greenfield D, Nugus P, Kiernan MC. Engaging in patient decision-making in multidisciplinary care for amyotrophic lateral sclerosis: the views of health professionals. *Patient Prefer Adher* 2012;6:691-701.
7. Umar N, Schollgen I, Terris DD. It is not always about gains: utilities and disutilities associated with treatment features in patients with moderate-to-severe psoriasis. *Patient Prefer Adher* 2012;6:187-184.
8. Levinson W, Roter D, Mullooly J, Frankel R. Physician-patient communication: The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;277:553-559.
9. Shaw WS, Woiszwilllo MJ, Krupat E. Further validation of the Patient-Practitioner Orientation Scale (PPOS) from recorded visits for back pain. *Patient Educ Couns* 2012;89:288-291.

10. Sweetow RW, Davis A, Hickson L. Paradigm shift in audiology education. *Audiology Today* 2010;Sept/Oct:32-35.
11. Hickson L. Defining a parading shift. *Sem Hear* 2012;33:3-8.
12. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids. *Int J Audiol* 2014;53:S68-75.
13. Laplante-Lévesque A, Hickson L, Grenness C. An Australian survey of audiologists' preferences for patient-centredness. *Int J Audiol* 2014;53:S76-82.
14. Laplante-Lévesque A, Hickson L, Worrall L. A qualitative study of shared decision making in rehabilitative audiology. *J Acad Rehabil Audiol* 2011;43:27-43
15. Poost-Foroosh L, Jennings MB, Shaw L, Meston CN, Cheeseman MF. Factors in client-clinician interaction that influence hearing aid adoption. *Trends Amplif.* 2011; 15(3):127-39
16. Goulios H, Patuzzi RB. Audiology education and practice from an international perspective. *Int J Audiol* 2008;47:647-664.
17. Zhao F, Manchaiah V, St. Claire L, Danermark B, Jones L, Rajalakshmi K, Goodwin R. Exploring the influence of culture on hearing help-seeking and hearing aid uptake: a discussion paper. *Int J Audiol* Submitted.
18. Saha S, Beach MC, Cooper LA. Patient centredness, cultural competency and healthcare quality. *J Natl Med Assoc* 2008;100(11):1275-1285.
19. Krupat E, Putnam SM, Yeager CM. The fit between doctors and patient: Can it be measures?. *J Gen Intern Med* 1996;11:134.
20. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000;25(24):3186-3191.

- 1
2
3
4 21. Tsimtsiou Z, Benos A, Garyfallos AA, Hatzimouratidis D. Predictors of physicians'
5 attitudes toward sharing information with patients and addressing psychosocial needs:
6 A cross-sectional study in Greece . *Health Commun* 2012;27:257-263.
7
8
9
10
11 22. Cooper LA, Roter D, Johnson RL, Ford DE, Steinwachs DM, et al. Patient-centred
12 communication, ratings of care, and concordance of patient and physician race. *Ann*
13 *Intern Med* 2003;139:907-915.
14
15
16
17 23. Al-Bawardy R, Blatt B, Al-Shohaib S, Simmens SJ. Cross-cultural comparison of the
18 patient-centredness of the hidden curriculum between a Saudi Arabia and 9 US
19 medical schools. *Med Educ Online* 2009;14:19. doi: [10.3885/meo.2009.T0000144](https://doi.org/10.3885/meo.2009.T0000144)
20
21
22
23 24. Hofstede Centre. National Cultural Dimensions. Available from: [http://geert-](http://geert-hofstede.com/dimensions.html)
24 [hofstede.com/dimensions.html](http://geert-hofstede.com/dimensions.html) (accessed on April 24, 2014).
25
26
27
28 25. Epner DE, Baile WF. Patient-centred care: the key to cultural competence. *Ann Oncol*
29 2012;23(S3):33-42.
30
31
32 26. Kaplan RM, Gandek B, Greenfield S, Rogers W, Ware J. Patient and visit
33 characteristics related to physicians participatory style: Results from medical outcome
34 study. *Med Care* 1995;33:1176-1183.
35
36
37
38 27. Roter D, Hall J. *Doctors talking with patients, Patients talking with doctors*.
39 Westport: Auburn House, 2006.
40
41
42
43 28. DiMatteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical
44 treatment outcomes: A meta-analysis. *Med Care* 2002;40:794-811.
45
46
47
48 29. Swenson SL, Buell S, Zettler P, White M, Ruston DC. et al. Patient-centered
49 communication: Do patients really prefer it? *J Gen Intern Med* 2004;19:1069-1080.
50
51
52
53 30. Lewin S, Skea ZC, Entwistle VA, Zwarenstein M, Dick J. Interventions for providers
54 to promote a patient-centred approach in clinical consultations. *Cochrane Database*
55 *Syst Rev* 2009;1:1-60.
56
57
58
59
60

- 1
2
3
4 31. Campinha-Bacote J. The process of cultural competence in the delivery of healthcare
5 services: A model of care. *J Transcult Nurs* 2002;13(3):181-184.
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For peer review only

Tables

Table 1: Demographic information

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
Age in years (Mean±SD)	30.9±8.4	31.0±8.4	29.6±8.6	32.5±8.0
Gender (%)				
▪ Male	37	20	55	30
▪ Female	63	80	45	70
Work set-up (%)				
▪ Clinic public	35	23	39	41
▪ Clinic private	50	51	61	33
▪ Clinic both	12	15	0	26
▪ Education	1	2	0	0
▪ Not known	2	9	0	0
Education (%)				
▪ Bachelors	47	72	18	60
▪ Masters	48	22	74	40
▪ Doctorate	5	6	8	0
Work experience in years (Mean±SD)	7.2±8.1	7.8±8.2	6.1±8.8	8.1±6.5

Table 2: Modified patient practitioner orientation scale (PPOS): Mean scores and standard deviation

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
PPOS Items (Mean±SD)				
1. The audiologist is the one who should decide what gets talked about during an appointment.	2.4±1.1	2.4±1.2	2.3±1.2	2.5±1.2
2. Although health care is less personal these days, this is a small price to pay for audiological advances.	3.0±1.4	4.3±1.2	2.7±1.2	2.1±1.0
3. The most important part of the standard audiological appointment is the hearing test.	2.7±1.4	3.4±1.2	2.5±1.5	2.3±1.1
4. It is often best for clients if they do not have the full explanation of their audiological condition.	4.6±1.3	5.0±1.0	4.5±1.5	4.2±1.3
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own.	3.2±1.7	4.2±1.4	3.4±1.6	2.0±1.3
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters.	4.4±1.3	5.0±1.0	4.0±1.3	4.2±1.4
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important.	4.8±1.2	5.5±0.7	4.4±1.3	4.6±1.2
8. Many clients continue asking questions even though they are not learning anything new.	3.2±1.2	3.4±1.2	3.2±1.2	3.0±1.2
9. Clients should be treated as if they were partners with the audiologist, equal in power and status.*	4.1±1.6	4.7±1.6	3.7±1.5	4.0±1.5
10. Clients generally want reassurance rather than information about their audiological condition.	2.8±1.1	3.3±1.0	2.7±1.1	2.5±1.1
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success.	4.3±1.4	4.6±1.1	3.8±1.4	4.6±1.3

12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust.	3.8±1.2	4.6±1.0	3.7±1.1	3.1±1.2
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values.*	4.7±1.1	4.7±1.1	4.6±1.0	4.7±1.2
14. Most clients want to get in and out of the audiologist's office as quickly as possible.	3.5±1.4	4.4±1.2	3.3±1.2	2.9±1.3
15. The client must always be aware that the audiologist is in charge.	2.6±1.3	2.7±1.2	2.4±1.1	2.9±1.5
16. It is not that important to know a client's culture and background in order to treat the client's audiological condition.	4.6±1.3	5.3±0.9	4.3±1.4	4.6±1.2
17. Humour is a major ingredient in the audiologist's management of the client.*	4.1±1.3	4.8±1.0	3.8±1.3	3.8±1.4
18. When clients look up audiological information on their own, this usually confuses more than it helps.	2.9±1.3	2.6±1.0	2.8±1.4	3.4±1.3
PPOS Scales (Mean±SD)				
▪ Full scale	3.6±0.6	4.2±0.5	3.5±0.6	3.4±0.4
▪ Sharing subscale	3.6±0.7	4.2±0.6	3.4±0.7	3.2±0.5
▪ Caring subscale	3.7±0.6	4.1±0.5	3.5±0.5	3.6±0.5

Note: Score of 1 (strongly agree) = most clinician-centred; Score of 6 (strongly disagree) = most patient-centred. Items 9, 13 and 17 (*) are reversely worded items which were reverse scored.

Table 3: Differences in audiologists' preferences for patient-centredness between countries

	Degree of freedom	F-test	P
Sharing	2	39.76	< 0.001
Caring	2	24.61	< 0.001
Full scale	2	42.49	< 0.001

FIGURE LEGENDS:

FIGURE 1: Bar Graphs showing the mean total PPOS Score ('Full Scale'), and the mean PPOS Score for the 'Sharing' and 'Caring' Subscales for Audiologists from Portugal, India and Iran. (*) indicates a significant difference ($P < 0.01$)

FIGURE 2: Bar graph showing Hofstede's cultural dimension values for Portugal, India and Iran. A high score power distance expresses that the less powerful members of a society accept and expect that power is distributed unequally. A high score on Individualism vs Collectivism can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. A high score on 'Masculinity vs Femininity' suggests a preference in society for achievement, heroism, assertiveness and material rewards for success as opposed to cooperation, modesty, caring for the weak and quality of life. A high score on 'Uncertainty Avoidance' suggests members of a society feel uncomfortable with uncertainty and ambiguity. A high score on 'Pragmatism' suggests the society encourages thrift and efforts in modern education as a way to prepare for the future, as opposed to relying on time-honoured traditions. A high score on 'Indulgence' suggests the society follows gratification of basic and natural human drives related to enjoying life and having fun, as opposed to restrain in such activities based on social norms.

1
2
3
4 **Audiologists' preferences for patient-centredness: A cross-**
5 **sectional questionnaire study of cross-cultural differences and**
6
7 **similarities among professionals in Portugal, India and Iran**
8
9

10
11
12
13
14
15 **Vinaya Manchaiah^{1,2}, Philip A. Gomersall¹, David Tomé³, Tayebeh Ahmadi⁴ &**
16 **Rajalakshmi Krishna⁵**
17

- 18
19
20 1. Department of Vision and Hearing Sciences, Anglia Ruskin University, Cambridge,
21 United Kingdom
22
23 2. Linnaeus Centre HEAD, Department of Behavioral Sciences and Learning, The
24 Swedish Institute for Disability Research, Linköping University, Linköping, Sweden
25
26 3. Department of Audiology, School of Allied Health Sciences, Polytechnic Institute of
27 Porto, Vila Nova de Gaia, Portugal
28
29 4. Department of Audiology, University of Social Welfare and Rehabilitation Sciences,
30 Tehran, Iran
31
32 5. All India Institute of Speech and Hearing, University of Mysore, Mysore, India
33
34
35
36
37
38
39
40
41

42 **Corresponding Author:** Philip A. Gomersall

43
44 **Address:** Department of Vision and Hearing Sciences, Coslett 204, Anglia Ruskin
45 University, Cambridge CB1 1PT, United Kingdom
46

47
48 **Email:** phil.gomersall@anglia.ac.uk; **Tel:** +44 (0)1223 698653
49
50
51
52
53
54
55
56
57
58
59
60

Abstract

Objective: Patient-centredness has become one of the important aspects of health service delivery, however, a limited number of studies exist that focus on this concept in the domain of hearing healthcare. The objective of this study was to examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran. **Design:** The study used a cross-sectional survey design with audiologists recruited from three different countries.

Participants: A total of 191 fully-completed responses were included in the analysis (55 from Portugal, 78 from India and 58 from Iran). **Main outcome measure:** The Patient-Practitioner

Orientation Scale. **Results:** Patient-Practitioner Orientation Scale mean scores suggest that

Audiologists have a preference for patient-centredness (i.e., mean of 3.6 in 5 point scale).

However, marked differences were observed between specific PPOS items suggesting these

preferences vary across clinical situations. A significant level of difference ($p < 0.001$) was

found between audiologists' preferences for patient-centredness in three countries.

Audiologists in Portugal had a greater preference for patient-centredness when compared to

audiologists in India and Iran, although no significant differences were found in terms of age

and duration of experience among these sample populations. **Conclusion:** There are

differences and similarities in audiologists' preferences for patient-centredness among

countries. These findings may have implications for the training of professionals and also for

clinical practice in terms of optimising hearing healthcare across countries.

Key Words

Patient-centeredness, Audiology, hearing healthcare, cross-culture

Summary

Article Focus

- To examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Key Message

- A significant level of difference was found between audiologists' preferences for patient-centredness in three countries.
- Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran.
- These findings may have implications for the training of professionals and for clinical practice in terms of optimising hearing healthcare across countries.

Strengths and Weakness

- A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists distributed across three countries.
- Some variables such as healthcare delivery models and educational system were not controlled for, but may have contributed to the differences and similarities noticed in audiologists preferences.
- A sampling bias may have been present, since audiologists with particular preferences may have been more inclined to respond to the questionnaire.
- The fact that identifiable information may have been present in the emailed responses had the potential to influence/discourage an individual's response.

Introduction

There has been an increase in advocacy towards patients' involvement in their health and care delivery, hence the concept 'patient-centredness' has received much attention over the past few decades.¹ Patient-centredness involves aspects such as increased importance placed on patient participation, self-determination of patients in their healthcare, and the creation of a power-balanced therapeutic relationship between patients and professionals.² Although there has been little consensus over the meaning of this concept universally, patient-centredness has been described with five main dimensions: (1) biopsychosocial perspective; (2) patient as a person; (3) shared power and responsibility; (4) therapeutic alliance; and (5) clinician as a person.¹ Patient-centredness has been suggested to be fundamental part of the successful management of chronic health conditions.³

Studies from a variety of areas of healthcare have suggested that the health professional's preferences towards patient-centredness is important in determining outcomes and patient satisfaction.⁴⁻⁷ Issues surrounding patient-centred care have also been linked to malpractice claims,⁸ and in general a preference for patient-centeredness correlates well with good clinical practices.⁹

The profession of Audiology is particularly interesting in this context since, traditionally, there has been a focus on the technological aspects of hearing healthcare. Some researchers believe that the last two decades has seen a paradigm shift; moving from a focus on the technological aspects of hearing healthcare to a more person-centred approach to rehabilitation.^{10 11} The empirical evidence for this shift is limited, with only a small number of published studies on patient-centredness specific to audiology.^{12 13} Laplante-Lévesque et al

1
2
3
4 conducted a qualitative study, exploring shared decision making in adults with acquired
5
6 hearing impairment, which suggested that patients wanted rehabilitative audiologists to hear
7
8 their experiences and preferences and to tailor their interventions accordingly.¹⁴ Poost-
9
10 Foroosh et al.¹⁵ studied the factors in the interaction between Audiologists and clients in the
11
12 decision to purchase a hearing aid. The study asked twelve clients with acquired hearing loss
13
14 and ten audiologists, from both University and private practices, to supply statements
15
16 regarding which clinician-patient factors they felt influenced the decision to purchase a
17
18 hearing aid. Client-centred interaction was identified as one of two major themes in the
19
20 responses provided (client-empowerment was the other).
21
22
23

24
25
26 Grenness et al.¹² studied the views of older adults who own hearing aids in order to further
27
28 define patient-centred care in the context of audiological rehabilitation. Interviews were
29
30 conducted with ten older adults with hearing aids, exploring their views and the data were
31
32 analysed using qualitative content analysis. The results suggested three dimensions: (1) the
33
34 therapeutic relationship; (2) the players - patient and audiologist; and (3) the clinical process,
35
36 and an overarching theme of individualised care specific to audiological rehabilitation. In
37
38 each case, the research discussed above demonstrates the significant value that patients place
39
40 in the relationship with the clinician. The reader is referred to a recent literature review by
41
42 Grenness et al.² for further details on patient-centred care in relation to rehabilitative
43
44 Audiology.
45
46
47
48
49

50
51 A recent study focussing specifically on Audiologists in Australia found a high preference
52
53 for patient-centredness.¹³ Moreover, demographic factors such as age, duration of work
54
55 experience and employment type (i.e., public/ private) acted as influencing factors towards
56
57 explaining patient-centredness. For example, older audiologists and those who had practiced
58
59
60

1
2
3
4 longer had a significantly greater preference to patient-centredness when compared to
5
6 younger and less-experienced audiologists. This is the only published study that has explicitly
7
8 explored audiologists' preferences towards patient-centredness. As a consequence, it is
9
10 unknown if audiologists in other countries would display similar preferences. Given that
11
12 Audiology practices vary considerably across countries,¹⁶ it would be useful to examine
13
14 audiologists' preferences for patient-centeredness across different countries which vary in
15
16 terms of culture and healthcare systems. Moreover, it has been highlighted in general that
17
18 there are few cross-cultural studies in the area of hearing healthcare, highlighting the need for
19
20 such studies¹⁸
21
22
23
24
25

26 Cultural competence is a key aspect that is known to influence healthcare quality^{17 18}. We
27
28 hypothesise that cultural aspects can influence both patients' and providers' preferences in
29
30 healthcare and towards patient-centredness. We were particularly interested in understanding
31
32 and comparing the preferences for patient-centeredness among Audiologists in European and
33
34 Asian countries. Asian countries, compared to European countries, are considered to be more
35
36 collectivist societies, with a greater emphasis placed on the role of the individual as part of a
37
38 local group and/or community with less of a tendency to focus on 'looking after oneself'.
39
40 Further to this, it has been posited that Asian countries have a tendency towards a high
41
42 'power distance' within levels of organisations – this reflects how willing the less powerful
43
44 members of an organisation or group are to accept an unequal distribution of power. In the
45
46 context of patient-centredness such cultural effects might result in different opinions towards
47
48 a hierarchical 'paternalistic' approach to audiological management, versus a patient centred-
49
50 approach.
51
52
53
54
55
56
57
58
59
60

1
2
3
4 The aim of the current study was to examine and compare audiologists' preferences for
5
6 patient-centredness in Portugal, India and Iran. These countries vary in terms of healthcare
7
8 system, culture and socio-economic status. However, they were chosen as they all have a
9
10 minimum educational level requirement of a Bachelor's degree education for Audiologists,
11
12 and also due to convenience in data collection.
13

14 15 16 17 **Method**

18 19 *Ethical Considerations*

20
21 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
22
23 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
24
25 collection in Portugal and India respectively. This kind of study did not require ethical
26
27 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
28
29 *Sciences* at Tehran for data collection in Iran.
30
31
32

33 34 35 *Study Design and Participants*

36
37 The current study used a cross-sectional survey design and purposive sampling to recruit
38
39 participants. The email mailing list was obtained from university and professional
40
41 associations which consisted of audiologists distributed throughout each of the three
42
43 countries. The Patient-Practitioner Orientation Scale (PPOS) questionnaire, with some
44
45 additional demographics questions (i.e., age, gender, number of years of experience, work
46
47 set-up, country of origin and country **in which** currently practicing), was sent to 260
48
49 Audiologists (80 in Portugal, 110 in India and 70 in Iran) via email, requesting them to
50
51 complete and return back to the researcher by email. Two email reminders were sent for non-
52
53 respondents after two and four weeks respectively. As the Email ID might have contained
54
55 some information that may have helped identify the individual, the survey was not fully
56
57
58
59
60

1
2
3
4 anonymous. In the interest of keeping the survey short, only limited demographic information
5
6 was requested and the choice was made to consider the most important aspects based on
7
8 previous studies.
9

10 11 12 *Questionnaire*

13
14 The PPOS was developed by Krupat et al.¹⁹ to study physician preferences towards patient-
15
16 centredness. However, a modified version of the PPOS that has previously been used to study
17
18 audiologists' preferences towards patient-centredness was used in the current study.¹³ This
19
20 modified version of the PPOS was found to have acceptable internal consistency ($\alpha=0.78$).
21
22 This scale has eighteen questions which are scored on a 6-point Likert scale (1 = strongly
23
24 agree; 6 = strongly disagree). The total score ranges from 18 (most patient-centred) to 108
25
26 (most audiologist-centred), and there are two sub-scales: The first nine-item sub-scale,
27
28 *sharing*, reflects the extent to which the respondent believes that patients desire information
29
30 and should be part of the decision making process (e.g., patients should be treated as if they
31
32 were partners with the audiologists, equal in power and status). The other nine-item sub-
33
34 scale, *caring*, reflects the extent to which the respondent sees the patient's expectations,
35
36 feelings, and life circumstances as critical elements in the treatment process (e.g., a treatment
37
38 plan cannot succeed if it is in conflict with a patient's lifestyle or values).
39
40
41
42
43
44
45

46 An English version of the questionnaire was administered in India. Portuguese and Farsi
47
48 translated versions were used in Portugal and Iran respectively. The questionnaire translation
49
50 process was aimed at achieving different language versions of the English instrument that are
51
52 conceptually equivalent in each of the target countries/cultures. That is, the focus was on
53
54 cross-cultural and conceptual, rather than on linguistic/literal equivalence. We followed the
55
56 well accepted forward-translations and back-translations method.²⁰ This process involved
57
58
59
60

1
2
3
4 four main stages: forward translation; expert back translation; review and resolution of any
5
6 discrepancies; and pre-testing with five participants each, in both Portugal and Iran.
7
8
9

10 **Data Analysis**

11
12 In the first instance, descriptive statistics (i.e., mean, standard deviation), a test of normality
13
14 and a test of homogeneity of variance were performed. Mean total PPOS scores for
15
16 audiologists from three countries were compared using an independent one-way analysis of
17
18 variance (ANOVA). An alpha level of 0.01 was used to determine significance. Bonferroni
19
20 *post-hoc* analysis was performed to further examine the relationship between groups. Further,
21
22 a one-way analysis of covariance (ANCOVA) was performed with age and duration of work
23
24 experience as covariates in order to exclude the influence of these variables on **the observed**
25
26 differences **between** the group means.
27
28
29
30
31
32

33 **Results**

34
35 A total of 198 responses (response rate of 76%) were received. This included: 55 responses
36
37 from Portugal (response rate of 69%); 82 responses from India (response rate of 75%); and
38
39 61 responses from Iran (response rate of 87%). However, three responses from Iran
40
41 (incomplete data) and four responses from India (audiologists currently practicing in a
42
43 different country) were excluded. A total of 191 responses (i.e., 73%) were included in the
44
45 analysis (55 from Portugal, 78 from India and 58 from Iran). Table 1 presents the
46
47 demographic information and Table 2 presents PPOS scores. ANOVA showed no difference
48
49 between groups in terms of age [$F(2, 188) = 2.13, p = 0.121$] and also duration of work
50
51 experience [$F(2, 188) = 1.16, p = 0.313$].
52
53
54

55 [Table 1 near here]

56 [Table 2 near here]

1
2
3
4
5
6 Data for both full-scale and subscales were found to be normally distributed (based on
7
8 Kolmogorov-Smirnov test and visual examination of histograms). Homogeneity of variances
9
10 (based on Levene's test) was found for *caring* and *total mean* ($p = 0.625$ and 0.129
11
12 respectively) and not for *sharing* ($p = 0.020$). Since our data were found to be normally
13
14 distributed, we elected to use ANOVA for our analysis, despite the fact that homogeneity of
15
16 variances could not be assumed for the *sharing* subscale. A robust procedures (Welch and
17
18 Brown-Forsythe) test was performed to check ANOVA findings which indicated the same
19
20 significant differences between group means ($p < 0.001$ in all cases).
21
22
23
24
25

26 The PPOS mean scores from each population were analysed using a one way between-
27
28 subjects ANOVA (see Table 3). A significant result was found for *sharing* subscale [$F(2,$
29
30 $188) = 39.76$], *caring* subscale [$F(2, 188) = 24.61$] and the *full* scale [$F(2, 188) = 42.49$].
31
32 Further, *post-hoc* tests with Bonferroni correction showed that the difference between
33
34 Portugal and India and also Portugal and Iran were significant for *sharing* subscale, *caring*
35
36 subscale and *full* scale ($p = 0.001, 0.001$ and 0.001 respectively). However, the difference
37
38 between India and Iran were not statistically significant for the *sharing* subscale, *caring*
39
40 subscale and *full* scale ($p = 0.171, p=0.841$ and $p=1$ respectively).
41
42
43
44
45

46 [Table 3 near here]
47
48
49

50 These results show some differences and some similarities in audiologists' preferences
51
52 towards patient-centredness from different countries (see Figure 1). Audiologists in Portugal
53
54 had significantly greater preference for patient-centredness when compared to audiologists in
55
56 India and Iran whose preferences did not differ much.
57
58
59
60

[Figure 1 near here]

Whilst our sample populations were well matched, with no significant differences with respect to age and experience, this does not exclude some possible influence of these variables on the data. Therefore we elected to include these variables as covariates, and assess if this had an influence on the main effect observed: The data met the necessary assumptions (i.e., linearity, homoscedasticity and homogeneity of regression slopes) and the ANCOVA results with age and duration of work experience as covariates and PPOS scores as dependent variable gave results consistent with the ANOVA, with a significant main effect for the full scale and subscales only and no significant interaction was observed. Thus we conclude that differences exist between the responses from audiologists from these countries in preference for patient-centredness, even after accounting for age and duration of work experience.

Discussion

This study examined and compared audiologists' preferences for patient-centredness in Portugal, India and Iran. The PPOS scores indicate the self-reported preference for aspects of patient-centredness. An overall mean score greater than 3 for all three countries included suggests that there is a tendency for Audiologists to favour patient-centredness, rather than a clinician-centred approach. This is true for both *caring* and *sharing* subscales. These values can be compared to those observed across other medical specialities.⁵ For example, general practitioners and oncology physicians had higher PPOS mean scores (i.e., 4.3 and 5.0 respectively) when compared with physicians with a surgical background (i.e., 2.9). Thus it appears that the training route and specific duties of the professional could be considered as factors in determining patient-centred practice.

1
2
3
4
5
6 From examination of the responses to each item it can be seen that audiologists' preferences
7
8 for patient-centredness vary depending upon the situation described (see Table 2). There is
9
10 some grouping of item responses, for example, mean PPOS score 2.4 in *item 1* (i.e.,
11
12 audiologist is the one who should decide what gets talked about during an appointment), 2.7
13
14 in *item 2* (i.e., most important part of the standard audiological appointment is the hearing
15
16 test), 2.8 in *item 10* (i.e., clients generally want reassurance rather than information about
17
18 their audiological condition) and 2.6 in *item 15* (i.e., client must always be aware that the
19
20 audiologist is in charge). These were markedly lower than the mean PPOS scores of 4.6 in
21
22 *item 4* (i.e., it is often best for clients if they do not have the full explanation of their
23
24 audiological condition), 4.8 in *item 7* (i.e., if audiologists are truly good at diagnosis and
25
26 treatment, the way they relate to clients is not that important) and 4.7 in *item 13* (i.e., a
27
28 management plan cannot succeed if it is in conflict with a client's lifestyle or values). Similar
29
30 results have been reported in a recent Australian study.¹⁴ These observations suggest that the
31
32 preference for patient centredness is consistent across particular situations. Generally,
33
34 audiologists prefer more control during the clinical appointment and like to decide what
35
36 information has the priority of discussion and also prefer to have audiological tests as the
37
38 central focus of the clinical appointment. This maybe because of the fact that traditionally
39
40 audiological practice had a greater emphasis on technology and many audiologists followed
41
42 more of a prescriptive approach to management. However, some researchers suggest that
43
44 there is a growing trend towards audiological practice with more emphasis on client-centred
45
46 rehabilitation.^{10, 11} Therefore; it may be useful to monitor Audiologists preferences for
47
48 patient-centredness over time.
49
50
51
52
53

54
55 The study results suggest some country-specific differences and some similarities in
56
57 preferences for patient-centredness among audiologists from Portugal ($M = 4.2$; $SD = 0.5$),
58
59
60

1
2
3
4 India ($M = 3.5$; $SD = 0.6$) and Iran ($M = 3.4$; $SD = 0.4$). Generally, audiologists' in Portugal
5
6 had a high preference for patient-centredness, when compared to audiologists in India and
7
8 Iran. Moreover, a recent study found that Australian audiologists¹⁴ have high preference for
9
10 patient-centredness ($M = 4.46$; $SD = 0.52$), which is similar to Portugal audiologists'
11
12 preferences reported in the current study.
13

14
15
16
17
18 When comparing scores across countries the trend for higher PPOS scores provided by
19
20 audiologists from Portugal compared to their peers from India and Iran, was true for almost
21
22 all questionnaire items when analysed individually. However, some variations exist. For
23
24 example, scores for *item 1* (i.e., audiologist is the one who should decide what gets talked
25
26 about during an appointment), was similar among audiologists in all three countries. This
27
28 might reflect a similarity in service delivery that place restricted time allowances on clinical
29
30 session that would encourage the Audiologist to keep conversation 'on task'. Scores for *item*
31
32 *18* (i.e., when clients look up audiological information on their own, this usually confuses
33
34 more than it helps) followed the reverse trend with audiologists in India and Iran scoring
35
36 higher than audiologists in Portugal, albeit by relatively small differences in score. In this
37
38 case, the ability of the patient population to find relevant information may be related to local
39
40 factors such as internet access and language-specific information resources. *Item 2* had the
41
42 largest difference in score between Portugal and the other two countries (i.e., Although health
43
44 care is less personal these days, this is a small price to pay for audiological advances). The
45
46 responses could have been influenced by how the respondent views recent audiological
47
48 advances. Improvements in technology have occurred at different times in different countries,
49
50 and therefore it may be that audiologist's responses are reflecting their opinion on which
51
52 technological advancements they feel have helped clients, as much reflecting their opinion on
53
54
55
56
57
58
59
60

1
2
3
4 the changing personal aspect of healthcare. An example would be if the move from analogue
5
6 to digital technology was more recent for India and Iran; this may be valued more highly
7
8 against a loss of the personal involvement in healthcare than in Portugal, if this development
9
10 had occurred further in the past. .
11
12

13
14
15 Studies from other disciplines have shown that the PPOS scores indicating preference for
16
17 patient-centredness can vary among professionals in different countries. For example,
18
19 medical practitioners' mean PPOS scores of 4.8 in the USA,⁴ compared to 3.3 in Greece.²¹,
20
21

22
23
24 The key influencing factors for the differences observed are the local healthcare system,
25
26 national culture, organisational-related factors (see Grenness et al.²), ethnicity²² and cross-
27
28 cultural aspects²³ as indicated in studies from other areas. We hypothesise that one of the
29
30 main contributing factors could be the 'culture'. Geert Hofstede defines culture as '*the*
31
32 *collective programming of the mind distinguishing the members of one group or category of*
33
34 *people from another*'.²⁴ Figure 2 represents Hofstede's dimensions of national culture in
35
36 Portugal, India and Iran, which include: power distance; individualism; masculinity;
37
38 uncertainty avoidance; pragmatism; and indulgence.²⁴ A greater number of similarities are
39
40 noticed between India and Iran when compared to Portugal (e.g., individualism, masculinity
41
42 and uncertainty avoidance). These observations are consistent with a contribution of culture
43
44 to differences and similarities in preferences for patient-centredness noticed among different
45
46 countries in this study. It would also be consistent with the previously reported findings of
47
48 medical practitioners from the USA, a country with a very high score of Individualism,
49
50 compared to Greece, considered to be a collectivist culture. Given this finding, we argue that
51
52 there is a need for increased focus on cultural competency for professionals in order to
53
54 deliver patient-centred care.²⁵
55
56
57
58
59
60

[Figure 2 near here]

It is important to note that the current study focused on self-reported preferences for patient-centredness and not the actual clinical behaviour. Previous studies have suggested that the preferences for patient-centredness measured using PPOS correlate well with the actual clinical behaviour of professionals as measured by verbal exchange between patients and professionals.⁹ However, not much is known about the patients' preferences for hearing healthcare services and more importantly for 'patient-centred healthcare' within these countries. Further studies with a qualitative design may help explore these aspects. A further consideration is to what extent the clinician population will reflect the general 'culture' that is assigned to a nation- it is likely that they vary from the general population with regards educational level in addition to other socioeconomic factors, and the degree of difference is likely to be specific to the particular profession, and also country being considered. However, we also consider it unlikely that there is no influence of country-specific cultural factors on the clinician population at all.

Other potential influences on audiologists' preferences for patient centredness are age, duration of work experience and employment type.¹³ In the current study no significant differences existed between groups in terms of age and duration of work experience. The distribution of audiologists among different areas of employment was broadly similar between countries. However, differences were noted in terms of participants' gender between countries. The estimates of male/female ratio practicing in Audiology in these countries, as indicated by the professional bodies, are 1:4, 1:2 and 1:2 in Portugal, India and Iran respectively. The current study sample had a similar gender pattern of audiologists even though not exactly matching these ratios. Gender has been found to influence the

1
2
3
4 practitioners' preference for patient-centredness with women displaying a greater preference
5
6 for patient-centredness than male counterparts,^{26 27} although this was not found to be a
7
8 significant factor for audiologists' preferences for patient-centredness in a large scale
9
10 Australian study.¹³ Hence, further exploration of a gender effect in preference for patient-
11
12 centredness is necessary in future studies.
13

14 15 16 17 *Study Implications and Future Directions*

18
19 Patient-centredness is important in healthcare as it is linked to patient-outcomes such as
20
21 increased satisfaction, adherence and health outcomes^{28 29} and also to perceived quality of
22
23 service delivery.¹⁸ Considering that there is evidence that rehabilitative Audiology patients
24
25 also prefer patient-centred care,¹⁴ this concept has direct clinical implications in hearing
26
27 healthcare.
28
29

30
31
32
33 The current study reports some interesting findings about audiologists' preference to patient-
34
35 centredness in different countries. Extrapolating from the above discussion, we may suggest
36
37 that the patients in Portugal may have better outcomes when compared to patients in India
38
39 and Iran as the Portugal audiologists had high preference for patient-centredness when
40
41 compared to audiologists in India and Iran. However, it might be more appropriate to study
42
43 patient-centredness of professionals in congruence with patients.⁴ For example, although the
44
45 mean scores in India and Iran were lower than those of Portugal, if the patients in India and
46
47 Iran have similar preferences for patient-centredness as the professionals then, the care
48
49 delivery is likely to meet patients' expectations. Further, it would be useful and important to
50
51 understand how the concept of patient-centredness is understood and valued by both
52
53 professionals and patients in different countries. If future studies (focussing on both
54
55
56
57
58
59
60

professionals and patients) suggest marked differences, similar to those demonstrated here, it may be necessary to reconceptualise the principle of patient-centredness.

Given that patient-centredness has been found to be an important factor in patient satisfaction and outcomes, at least in some countries, and since it has been suggested that clinicians can learn to become patient-centred,³⁰ it may be necessary to include such concepts in training programmes, particularly in cases where practitioners demonstrate a significantly lower preference towards patient-centredness than their patients. Moreover, future studies may also focus on understanding the differences and similarities in preferences towards patient-centredness among sub-cultures within the same country (e.g., different ethnic groups). Such studies may shed some light into arguments of researchers who have been advocating the need for cultural competence in the delivery of healthcare services.³¹ Moreover; this may have consequences for the increasingly international Audiology workforce,¹⁶ both in terms of the migration of audiologists to other countries for better job prospects and the provision of distance-learning models of education. Overall, this information may highlight the need for optimising hearing healthcare globally.

Strengths and Limitations

A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists' distributed across three countries. Nevertheless, the study has some limitations. For example, aspects such as healthcare delivery models and educational system were not controlled for, but may have contributed to the differences and similarities noticed in audiologists preferences. However, there was a reasonable spread of audiologist practicing in public and private Audiology clinics, and audiologists in all three countries were trained to a minimum standard of a Bachelor's degree. A relatively small

1
2
3
4 sample size and lack of anonymity in data collection were also limitations of the current
5
6 study. We were aware that a sampling bias may have been present, since audiologists with
7
8 particular preferences may have been more inclined to respond to the questionnaire. The fact
9
10 that identifiable information may have been present in the emailed responses had the
11
12 potential to influence/discourage an individual's response. These biases would have been
13
14 present for all countries.
15
16
17
18
19

20 Conclusion

21
22 The data described here are the first in hearing healthcare to demonstrate specific differences
23
24 and similarities in audiologists' preferences for patient-centeredness across three countries.
25

26 We observed that the two countries with the most similar cultural profile had the most similar
27
28 preference level for patient-centred care. There are several factors might influence preference
29
30 for patient centred-practice, and further investigation is required in order to determine the role
31
32 of the education and healthcare system, organisational-related factors, and ethnicity in
33
34 contributing to the differences and similarities noticed. Clinician reported Patient-
35
36 centredness and the cultural aspects of the clinician and patient population are different
37
38 across countries and this may have implications for the training professionals and
39
40 implementation of clinical practice in terms of optimising hearing healthcare across countries.
41
42
43
44
45
46

47 Acknowledgements

48
49 We gratefully acknowledge Professors Edward Krupat and Louise Hickson for allowing us to
50
51 use the modified version of the PPOS.
52
53
54
55

56 Contributors

1
2
3
4 VM - Contributed to most parts of the work including data collection, analysis and writing;

5
6 PG - Contributed to data analysis, interpretation and write up; DT - Contributed to data
7
8 collection and write up; TA - Contributed to data collection and write up; KR - Contributed to
9
10 data collection and write up.
11

12 13 14 15 **Funding**

16
17 No funding was received to conduct this study.
18
19

20 21 22 **Ethical Approval**

23
24 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
25
26 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
27
28 collection in Portugal and India respectively. This kind of study did not require ethical
29
30 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
31
32 *Sciences* at Tehran for data collection in Iran.
33
34
35
36
37

38 39 **Data Sharing**

40
41 No additional data are available.
42
43
44

45 46 **Conflict of interests**

47
48 None.
49
50

51 52 **References**

- 53
54
55 1. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the
56
57 empirical literature. *Soc Sci Med* 2000;51:1087-1110.
58
59
60

2. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centredness care: A review for rehabilitative audiologists. *Int J Audiol* 2014;53:S60-67.
3. Michie S, Miles J, Weinman J. Patient-centredness in illness: What is it and does it matter?. *Patient Educ Couns* 2003;51:197-206.
4. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice orientations of physicians and patients: the effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 2000;39:49-59.
5. Chan CMH, Azman WA. Attitudes and role orientation of doctor-patient fit and patient satisfaction in cancer care. *Singapore Med J* 2012;53(1):52-56.
6. Hogden A, Greenfield D, Nugus P, Kiernan MC. Engaging in patient decision-making in multidisciplinary care for amyotrophic lateral sclerosis: the views of health professionals. *Patient Prefer Adher* 2012;6:691-701.
7. Umar N, Schollgen I, Terris DD. It is not always about gains: utilities and disutilities associated with treatment features in patients with moderate-to-severe psoriasis. *Patient Prefer Adher* 2012;6:187-184.
8. Levinson W, Roter D, Mullooly J, Frankel R. Physician-patient communication: The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;277:553-559.
9. Shaw WS, Woiszwillo MJ, Krupat E. Further validation of the Patient-Practitioner Orientation Scale (PPOS) from recorded visits for back pain. *Patient Educ Couns* 2012;89:288-291.
10. Sweetow RW, Davis A, Hickson L. Paradigm shift in audiology education. *Audiology Today* 2010;Sept/Oct:32-35.
11. Hickson L. Defining a paradigm shift. *Sem Hear* 2012;33:3-8.

12. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids. *Int J Audiol* 2014;53:S68-75.
13. Laplante-Lévesque A, Hickson L, Grenness C. An Australian survey of audiologists' preferences for patient-centredness. *Int J Audiol* 2014;53:S76-82.
14. Laplante-Lévesque A, Hickson L, Worrall L. A qualitative study of shared decision making in rehabilitative audiology. *J Acad Rehabil Audiol* 2011;43:27-43
15. Poost-Foroosh L, Jennings MB, Shaw L, Meston CN, Cheeseman MF. Factors in client-clinician interaction that influence hearing aid adoption. *Trends Amplif.* 2011; 15(3):127-39
16. Goulios H, Patuzzi RB. Audiology education and practice from an international perspective. *Int J Audiol* 2008;47:647-664.
17. Zhao F, Manchaiah V, St. Claire L, Danermark B, Jones L, Rajalakshmi K, Goodwin R. Exploring the influence of culture on hearing help-seeking and hearing aid uptake: a discussion paper. *Int J Audiol* Submitted.
18. Saha S, Beach MC, Cooper LA. Patient centredness, cultural competency and healthcare quality. *J Natl Med Assoc* 2008;100(11):1275-1285.
19. Krupat E, Putnam SM, Yeager CM. The fit between doctors and patient: Can it be measures?. *J Gen Intern Med* 1996;11:134.
20. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000;25(24):3186-3191.
21. Tsimtsiou Z, Benos A, Garyfallos AA, Hatzimouratidis D. Predictors of physicians' attitudes toward sharing information with patients and addressing psychosocial needs: A cross-sectional study in Greece . *Health Commun* 2012;27:257-263.

- 1
2
3
4 22. Cooper LA, Roter D, Johnson RL, Ford DE, Steinwachs DM, et al. Patient-centred
5 communication, ratings of care, and concordance of patient and physician race. *Ann*
6 *Intern Med* 2003;139:907-915.
7
8
9
10 23. Al-Bawardy R, Blatt B, Al-Shohaib S, Simmens SJ. Cross-cultural comparison of the
11 patient-centredness of the hidden curriculum between a Saudi Arabia and 9 US
12 medical schools. *Med Educ Online* 2009;14:19. doi: [10.3885/meo.2009.T0000144](https://doi.org/10.3885/meo.2009.T0000144)
13
14
15 24. Hofstede Centre. National Cultural Dimensions. Available from: [http://geert-](http://geert-hofstede.com/dimensions.html)
16 [hofstede.com/dimensions.html](http://geert-hofstede.com/dimensions.html) (accessed on April 24, 2014).
17
18
19 25. Epner DE, Baile WF. Patient-centred care: the key to cultural competence. *Ann Oncol*
20 2012;23(S3):33-42.
21
22 26. Kaplan RM, Gandek B, Greenfield S, Rogers W, Ware J. Patient and visit
23 characteristics related to physicians participatory style: Results from medical outcome
24 study. *Med Care* 1995;33:1176-1183.
25
26 27. Roter D, Hall J. *Doctors talking with patients, Patients talking with doctors*.
27 Westport: Auburn House, 2006.
28
29 28. DiMatteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical
30 treatment outcomes: A meta-analysis. *Med Care* 2002;40:794-811.
31
32 29. Swenson SL, Buell S, Zettler P, White M, Ruston DC. et al. Patient-centered
33 communication: Do patients really prefer it? *J Gen Intern Med* 2004;19:1069-1080.
34
35 30. Lewin S, Skea ZC, Entwistle VA, Zwarenstein M, Dick J. Interventions for providers
36 to promote a patient-centred approach in clinical consultations. *Cochrane Database*
37 *Syst Rev* 2009;1:1-60.
38
39 31. Campinha-Bacote J. The process of cultural competence in the delivery of healthcare
40 services: A model of care. *J Transcult Nurs* 2002;13(3):181-184.
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For peer review only

Tables

Table 1: Demographic information

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
Age in years (Mean±SD)	30.9±8.4	31.0±8.4	29.6±8.6	32.5±8.0
Gender (%)				
▪ Male	37	20	55	30
▪ Female	63	80	45	70
Work set-up (%)				
▪ Clinic public	35	23	39	41
▪ Clinic private	50	51	61	33
▪ Clinic both	12	15	0	26
▪ Education	1	2	0	0
▪ Not known	2	9	0	0
Education (%)				
▪ Bachelors	47	72	18	60
▪ Masters	48	22	74	40
▪ Doctorate	5	6	8	0
Work experience in years (Mean±SD)	7.2±8.1	7.8±8.2	6.1±8.8	8.1±6.5

Table 2: Modified patient practitioner orientation scale (PPOS): Mean scores and standard deviation

	All participants (n=191)	Portugal (n=55)	India (n=78)	Iran (n=58)
PPOS Items (Mean±SD)				
1. The audiologist is the one who should decide what gets talked about during an appointment.	2.4±1.1	2.4±1.2	2.3±1.2	2.5±1.2
2. Although health care is less personal these days, this is a small price to pay for audiological advances.	3.0±1.4	4.3±1.2	2.7±1.2	2.1±1.0
3. The most important part of the standard audiological appointment is the hearing test.	2.7±1.4	3.4±1.2	2.5±1.5	2.3±1.1
4. It is often best for clients if they do not have the full explanation of their audiological condition.	4.6±1.3	5.0±1.0	4.5±1.5	4.2±1.3
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own.	3.2±1.7	4.2±1.4	3.4±1.6	2.0±1.3
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters.	4.4±1.3	5.0±1.0	4.0±1.3	4.2±1.4
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important.	4.8±1.2	5.5±0.7	4.4±1.3	4.6±1.2
8. Many clients continue asking questions even though they are not learning anything new.	3.2±1.2	3.4±1.2	3.2±1.2	3.0±1.2
9. Clients should be treated as if they were partners with the audiologist, equal in power and status.*	4.1±1.6	4.7±1.6	3.7±1.5	4.0±1.5
10. Clients generally want reassurance rather than information about their audiological condition.	2.8±1.1	3.3±1.0	2.7±1.1	2.5±1.1
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success.	4.3±1.4	4.6±1.1	3.8±1.4	4.6±1.3

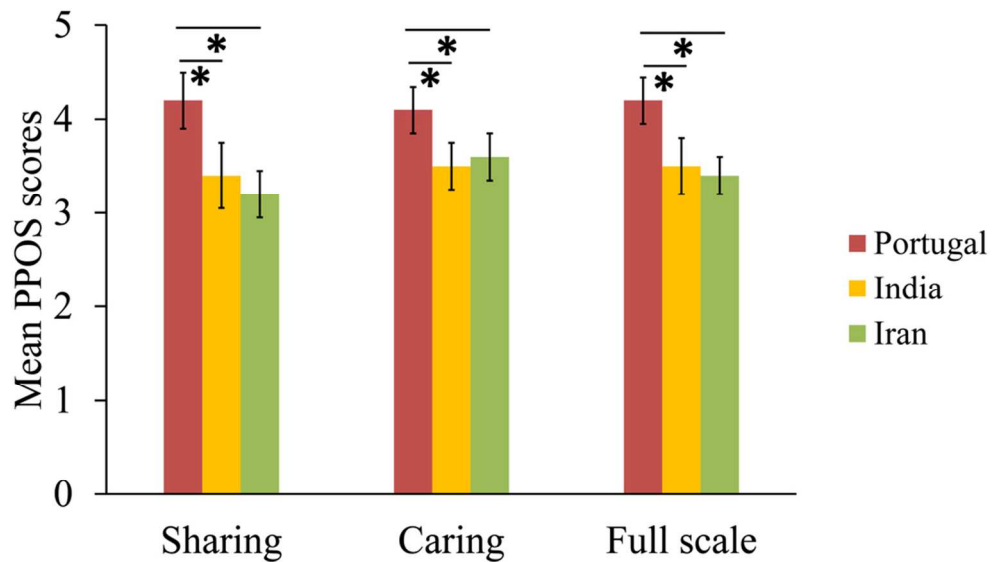
12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust.	3.8±1.2	4.6±1.0	3.7±1.1	3.1±1.2
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values.*	4.7±1.1	4.7±1.1	4.6±1.0	4.7±1.2
14. Most clients want to get in and out of the audiologist's office as quickly as possible.	3.5±1.4	4.4±1.2	3.3±1.2	2.9±1.3
15. The client must always be aware that the audiologist is in charge.	2.6±1.3	2.7±1.2	2.4±1.1	2.9±1.5
16. It is not that important to know a client's culture and background in order to treat the client's audiological condition.	4.6±1.3	5.3±0.9	4.3±1.4	4.6±1.2
17. Humour is a major ingredient in the audiologist's management of the client.*	4.1±1.3	4.8±1.0	3.8±1.3	3.8±1.4
18. When clients look up audiological information on their own, this usually confuses more than it helps.	2.9±1.3	2.6±1.0	2.8±1.4	3.4±1.3
PPOS Scales (Mean±SD)				
▪ Full scale	3.6±0.6	4.2±0.5	3.5±0.6	3.4±0.4
▪ Sharing subscale	3.6±0.7	4.2±0.6	3.4±0.7	3.2±0.5
▪ Caring subscale	3.7±0.6	4.1±0.5	3.5±0.5	3.6±0.5

Note: Score of 1 (strongly agree) = most clinician-centred; Score of 6 (strongly disagree) = most patient-centred. Items 9, 13 and 17 (*) are reversely worded items which were reverse scored.

Table 3: Differences in audiologists' preferences for patient-centredness between countries

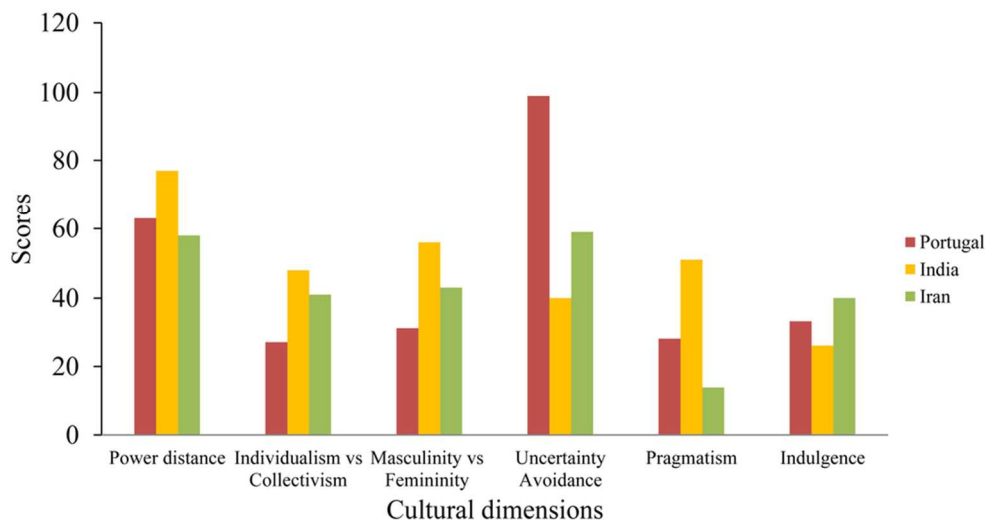
	Degree of freedom	F-test	P
Sharing	2	39.76	< 0.001
Caring	2	24.61	< 0.001
Full scale	2	42.49	< 0.001

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Bar Graphs showing the mean total PPOS Score ('Full Scale'), and the mean PPOS Score for the 'Sharing' and 'Caring' Subscales for Audiologists from Portugal, India and Iran. (*) indicates a significant difference (P<0.01)
92x52mm (300 x 300 DPI)

review only



Bar graph showing Hofstede's cultural dimension values for Portugal, India and Iran. A high score power distance expresses that the less powerful members of a society accept and expect that power is distributed unequally. A high score on Individualism vs Collectivism can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. A high score on 'Masculinity vs Femininity' suggests a preference in society for achievement, heroism, assertiveness and material rewards for success as opposed to cooperation, modesty, caring for the weak and quality of life. A high score on 'Uncertainty Avoidance' suggests members of a society feel uncomfortable with uncertainty and ambiguity. A high score on 'Pragmatism' suggests the society encourages thrift and efforts in modern education as a way to prepare for the future, as opposed to relying on time-honoured traditions. A high score on 'Indulgence' suggests the society follows gratification of basic and natural human drives related to enjoying life and having fun, as opposed to restrain in such activities based on social norms.

90x47mm (300 x 300 DPI)

STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*
Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2 & 3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4 – 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7 – 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7 - 8
Bias	9	Describe any efforts to address potential sources of bias	7 & 15
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	NA
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	9
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9 & 21
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	9 - 11
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9 - 11
		(b) Report category boundaries when continuous variables were categorized	9 - 11
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	9 - 11
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9 - 11
Discussion			
Key results	18	Summarise key results with reference to study objectives	11 - 13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13 - 15
Generalisability	21	Discuss the generalisability (external validity) of the study results	13 - 15
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	16

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Audiologists' preferences for patient-centredness: A cross-sectional questionnaire study of cross-cultural differences and similarities among professionals in Portugal, India and Iran

Journal:	<i>BMJ Open</i>
Manuscript ID:	bmjopen-2014-005915.R2
Article Type:	Research
Date Submitted by the Author:	11-Sep-2014
Complete List of Authors:	Gomersall, Philip; Anglia Ruskin University, Department of Vision and Hearing Sciences Manchaiah, Vinaya; Anglia Ruskin University, Department of Vision and Hearing Sciences Tomé, David; Polytechnic Institute of Porto, Audiology Ahmadi, Tayebah; University of Social Welfare and Rehabilitation Sciences, Audiology Krishna, Rajalakshmi; University of Mysore, All India Institute of Speech and Hearing
Primary Subject Heading:	Patient-centred medicine
Secondary Subject Heading:	Ear, nose and throat/otolaryngology
Keywords:	Audiology < OTOLARYNGOLOGY, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, MEDICAL EDUCATION & TRAINING

SCHOLARONE™
Manuscripts

1
2
3
4 **Audiologists' preferences for patient-centredness: A cross-**
5
6
7 **sectional questionnaire study of cross-cultural differences and**
8
9
10 **similarities among professionals in Portugal, India and Iran**
11
12
13

14 **Vinaya Manchaiah^{1,2}, Philip A. Gomersall¹, David Tomé³, Tayebah Ahmadi⁴ &**
15
16 **Rajalakshmi Krishna⁵**
17

- 18
19
20 1. Department of Vision and Hearing Sciences, Anglia Ruskin University, Cambridge,
21 United Kingdom
22
23 2. Linnaeus Centre HEAD, Department of Behavioral Sciences and Learning, The
24 Swedish Institute for Disability Research, Linköping University, Linköping, Sweden
25
26 3. Department of Audiology, School of Allied Health Sciences, Polytechnic Institute of
27 Porto, Vila Nova de Gaia, Portugal
28
29 4. Department of Audiology, University of Social Welfare and Rehabilitation Sciences,
30 Tehran, Iran
31
32 5. All India Institute of Speech and Hearing, University of Mysore, Mysore, India
33
34
35
36
37
38
39
40
41

42 **Corresponding Author:** Philip A. Gomersall

43
44 **Address:** Department of Vision and Hearing Sciences, Coslett 204, Anglia Ruskin
45 University, Cambridge CB1 1PT, United Kingdom
46

47
48 **Email:** phil.gomersall@anglia.ac.uk; **Tel:** +44 (0)1223 698653
49
50
51
52
53
54
55
56
57
58
59
60

Key Words

Patient-centeredness, Audiology, hearing healthcare, cross-culture

For peer review only

Abstract

Objective: Patient-centredness has become one of the important aspects of health service delivery, however, a limited number of studies exist that focus on this concept in the domain of hearing healthcare. The objective of this study was to examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Design: The study used a cross-sectional survey design with audiologists recruited from three different countries.

Participants: A total of 191 fully-completed responses were included in the analysis (55 from Portugal, 78 from India and 58 from Iran).

Main outcome measure: The Patient-Practitioner Orientation Scale.

Results: Patient-Practitioner Orientation Scale mean scores suggest that Audiologists have a preference for patient-centredness (i.e., mean of 3.6 in 5 point scale). However, marked differences were observed between specific PPOS items suggesting these preferences vary across clinical situations. A significant level of difference ($p < 0.001$) was found between audiologists' preferences for patient-centredness in three countries. Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran, although no significant differences were found in terms of age and duration of experience among these sample populations.

Conclusion: There are differences and similarities in audiologists' preferences for patient-centredness among countries. These findings may have implications for the training of professionals and also for clinical practice in terms of optimising hearing healthcare across countries.

Summary

Article Focus

- To examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Key Message

- A significant level of difference was found between audiologists' preferences for patient-centredness in three countries.
- Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran.
- These findings may have implications for the training of professionals and for clinical practice in terms of optimising hearing healthcare across countries.

Strengths and Weakness

- A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists distributed across three countries.
- Some variables such as differing healthcare delivery models and educational systems were not controlled for, and may have contributed to the differences and similarities noticed in audiologists preferences.
- A sampling bias may have been present, since audiologists with particular preferences may have been more inclined to respond to the questionnaire.
- The fact that identifiable information may have been present in the emailed responses had the potential to influence/discourage an individual's response.

Introduction

There has been an increase in advocacy towards patients' involvement in their health and care delivery, hence the concept 'patient-centredness' has received much attention over the past few decades¹. Patient-centeredness involves aspects such as increased importance placed on patient participation, self-determination of patients in their healthcare (i.e., the rights and abilities of patients to make their own choices and decisions about the medical care they receive), and the creation of a power-balanced therapeutic relationship between patients and professionals². Although there has been little consensus over the meaning of this concept universally, patient-centredness has been described in the field of general practice with five main dimensions: (1) biopsychosocial perspective; (2) patient as a person; (3) shared knowledge and power; (4) therapeutic alliance; and (5) clinician as a person¹. Patient-centeredness has been suggested to be fundamental part of the successful management of chronic health conditions³.

Studies from a variety of areas of healthcare (including oncology, skin disorders, amyotrophic lateral sclerosis) have suggested that the health professional's preferences towards patient-centeredness is important in determining outcomes, including patient satisfaction⁴⁻⁷. A shortfall in patient-centeredness has also been linked to malpractice claims⁸, and in general a measured preference for patient-centeredness correlates well with clinical practices such as open communication and a positive rapport between patient and clinician⁹.

The profession of Audiology is particularly interesting in this context since, traditionally, there has been a focus on the technological aspects of hearing healthcare¹⁰. Some researchers believe that the last two decades has seen a paradigm shift; moving from a focus

1
2
3
4 on the technological aspects of hearing healthcare to a more person-centred approach to
5
6 rehabilitation^{10 11}. The empirical evidence for this shift is limited, with only a small number
7
8 of published studies on patient-centeredness specific to audiology: Grenness et al.¹² studied
9
10 the views of older adults who own hearing aids in order to further define patient-centred care
11
12 in the context of audiological rehabilitation. Interviews were conducted with ten older adults
13
14 with hearing aids, exploring their views and the data were analysed using qualitative content
15
16 analysis. The results suggested three dimensions: (1) the therapeutic relationship; (2) the
17
18 players - patient and audiologist; and (3) the clinical process, and an overarching theme of
19
20 individualised care specific to audiological rehabilitation.
21
22
23

24
25
26 A recent study focussing specifically on Audiologists in Australia found that they report a
27
28 high preference for patient-centredness¹³. Moreover, demographic factors such as age,
29
30 duration of work experience and employment type (i.e., public/ private) acted as influencing
31
32 factors towards explaining patient-centredness. For example, older audiologists and those
33
34 who had practiced longer had a significantly greater preference for patient-centeredness when
35
36 compared to younger and less-experienced audiologists. This is the only published study that
37
38 has explicitly explored audiologists' preferences towards patient-centredness.
39

40
41 Two further studies have been conducted in the field of Audiology that, whilst not explicitly
42
43 focusing on patient centeredness as a distinct entity, are highly relevant: Laplante-Lévesque
44
45 et al conducted a qualitative study, exploring shared decision making in adults with acquired
46
47 hearing impairment, which suggested that patients wanted rehabilitative audiologists to hear
48
49 their experiences and preferences and to tailor their interventions accordingly¹⁴. Poost-
50
51 Foroosh et al.¹⁵ studied the factors in the interaction between Audiologists and clients in the
52
53 decision to purchase a hearing aid. The study asked twelve clients with acquired hearing loss
54
55 and ten audiologists, from both University and private practices, to supply statements
56
57
58
59
60

1
2
3
4 regarding which clinician-patient factors they felt influenced the decision to purchase a
5
6 hearing aid. Client-centred interaction was identified as one of two major themes in the
7
8 responses provided (client-empowerment was the other).
9

10
11
12 In all cases, the research discussed above consistently demonstrates the significant value that
13
14 patients place in the relationship with the clinician. Across the studies it can be seen that
15
16 different clinician-specific factors were found to influence the degree of patient-centeredness.
17
18 As of yet there is little strong evidence for improved rehabilitation outcomes, although
19
20 hearing aid purchase was observed to be positively influenced by more client-centred
21
22 practice. The reader is referred to a recent literature review by Grenness et al.² for further
23
24 details on patient-centred care in relation to rehabilitative Audiology.
25
26
27
28
29

30
31 Given the clinician-specific differences observed in the studies discussed above, and the fact
32
33 that Audiology practices vary considerably across countries¹⁶, it would be useful to examine
34
35 audiologists' preferences for patient-centeredness across different countries which vary in
36
37 terms of culture and healthcare systems. Moreover; it has been highlighted in general that
38
39 there are few cross-cultural studies in the area of hearing healthcare, highlighting the need for
40
41 such studies¹⁸
42
43
44
45

46 Cultural competence is a key aspect that is known to influence healthcare quality^{17 18}. We
47
48 hypothesise that the present culture to which an individual is exposed, as well as their cultural
49
50 background, can influence both patients' and providers' preferences in healthcare and
51
52 towards patient-centredness. We were particularly interested in understanding and comparing
53
54 the preferences for patient-centeredness among Audiologists in European and Asian
55
56 countries. Asian countries, compared to European countries, are considered to be more
57
58
59
60

1
2
3
4 collectivist societies, with a greater emphasis placed on the role of the individual as part of a
5
6 local group and/or community with less of a tendency to focus on ‘looking after oneself’²⁴.
7

8
9 Further to this, it has been posited that Asian countries have a tendency towards a high
10
11 ‘power distance’ within levels of organisations – this reflects how willing the less powerful
12
13 members of an organisation or group are to accept an unequal distribution of power²⁴. In the
14
15 context of patient-centredness such cultural effects might result in different opinions towards
16
17 a hierarchical ‘paternalistic’ approach to audiological management (where the clinician may
18
19 display an attitude of superiority over the patient), versus a patient centred-approach.
20
21

22
23
24
25
26 The aim of the current study was to examine and compare audiologists’ preferences for
27
28 patient-centredness in Portugal, India and Iran. These countries vary in terms of healthcare
29
30 system, culture and socio-economic status. However, they were chosen as they all have a
31
32 minimum educational level requirement of a Bachelor’s degree education for Audiologists,
33
34 and also due to convenience in data collection.
35
36
37
38
39

40 **Method**

41 *Ethical Considerations*

42
43 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
44
45 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
46
47 collection in Portugal and India respectively. This kind of study did not require ethical
48
49 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
50
51 *Sciences* at Tehran for data collection in Iran.
52
53
54
55
56
57

58 *Study Design and Participants*

1
2
3
4 The current study used a cross-sectional survey design and purposive sampling to recruit
5
6 participants. The email mailing list was obtained from university and professional
7
8 associations which consisted of audiologists distributed throughout each of the three
9
10 countries. The Patient-Practitioner Orientation Scale (PPOS) questionnaire, with some
11
12 additional demographics questions (i.e., age, gender, number of years of experience, work
13
14 set-up, country of origin and country in which currently practicing), was sent to 260
15
16 Audiologists (80 in Portugal, 110 in India and 70 in Iran) via email, requesting them to
17
18 complete and return back to the researcher by email. Two email reminders were sent for non-
19
20 respondents after two and four weeks respectively. As the Email ID might have contained
21
22 some information that may have helped identify the individual, the survey was not fully
23
24 anonymous. In the interest of keeping the survey short, only limited demographic information
25
26 was requested and the choice was made to consider the most important aspects based on the
27
28 findings of the previous studies¹²⁻¹⁴, as discussed in the introduction.
29
30
31
32
33
34

35 *Questionnaire*

36
37 The PPOS was developed by Krupat et al.¹⁹ to study physician preferences towards patient-
38
39 centredness. However, a modified version of the PPOS that has previously been used to study
40
41 audiologists' preferences towards patient-centredness was used in the current study¹³. This
42
43 modified version of the PPOS was found to have acceptable internal consistency ($\alpha = 0.78$).
44
45 This scale has eighteen questions which are scored on a 6-point Likert scale (1 = strongly
46
47 agree; 6 = strongly disagree). The total score ranges from 18 (most audiologist-centred) to
48
49 108 (most patient-centred), and there are two sub-scales: The first nine-item sub-scale,
50
51 *sharing*, reflects the extent to which the respondent believes that patients desire information
52
53 and should be part of the decision making process (e.g., patients should be treated as if they
54
55 were partners with the audiologists, equal in power and status). The other nine-item sub-
56
57
58
59
60

1
2
3
4 scale, *caring*, reflects the extent to which the respondent sees the patient's expectations,
5
6 feelings, and life circumstances as critical elements in the treatment process (e.g., a treatment
7
8 plan cannot succeed if it is in conflict with a patient's lifestyle or values).
9

10
11
12 An English version of the questionnaire was administered in India. Portuguese and Farsi
13 translated versions were used in Portugal and Iran respectively. The questionnaire translation
14
15 process was aimed at achieving different language versions of the English instrument that are
16
17 conceptually equivalent in each of the target countries/cultures. That is, the focus was on
18
19 cross-cultural and conceptual, rather than on linguistic/literal equivalence. We followed the
20
21 well accepted forward-translations and back-translations method²⁰. This process involved
22
23 four main stages: forward translation; expert back translation; review and resolution of any
24
25 discrepancies; and pre-testing with five participants each, in both Portugal and Iran.
26
27
28
29
30
31
32

33 **Data Analysis**

34
35 In the first instance, descriptive statistics (i.e., mean, standard deviation), a test of normality
36
37 and a test of homogeneity of variance were performed. Mean total PPOS scores for
38
39 audiologists from three countries were compared using an independent one-way analysis of
40
41 variance (ANOVA). An alpha level of 0.01 was used to determine significance. Bonferroni
42
43 *post-hoc* analysis was performed to further examine the relationship between groups. Further,
44
45 a one-way analysis of covariance (ANCOVA) was performed with age and duration of work
46
47 experience as covariates in order to exclude the influence of these variables on the observed
48
49 differences between the group means.
50
51
52
53
54

55 **Results**

56
57
58
59
60

1
2
3
4 A total of 198 responses (response rate of 76%) were received. This included: 55 responses
5
6 from Portugal (response rate of 69%); 82 responses from India (response rate of 75%); and
7
8 61 responses from Iran (response rate of 87%). However, three responses from Iran
9
10 (incomplete data) and four responses from India (audiologists currently practicing in a
11
12 different country) were excluded. A total of 191 responses (i.e., 73%) were included in the
13
14 analysis (55 from Portugal, 78 from India and 58 from Iran). Table 1 presents the
15
16 demographic information and Table 2 presents PPOS scores. ANOVA showed no difference
17
18 between groups in terms of age [$F(2, 188) = 2.13, p = 0.121$] and also duration of work
19
20 experience [$F(2, 188) = 1.16, p = 0.313$].
21
22

23
24 [Table 1 near here]

25
26 [Table 2 near here]
27
28
29

30
31 Data for both full-scale and subscales were found to be normally distributed (based on
32
33 Kolmogorov-Smirnov test and visual examination of histograms). Homogeneity of variances
34
35 (based on Levene's test) was found for *caring* and *total mean* ($p = 0.625$ and 0.129
36
37 respectively) and not for *sharing* ($p = 0.020$). Since our data were found to be normally
38
39 distributed, we elected to use ANOVA for our analysis, despite the fact that homogeneity of
40
41 variances could not be assumed for the *sharing* subscale. A robust procedures (Welch and
42
43 Brown-Forsythe) test was performed to check ANOVA findings which indicated the same
44
45 significant differences between group means ($p < 0.001$ in all cases).
46
47
48

49
50 The PPOS mean scores from each population were analysed using a one way between-
51
52 subjects ANOVA (see Table 3). A significant result was found for *sharing* subscale [$F(2,$
53
54 $188) = 39.76$], *caring* subscale [$F(2, 188) = 24.61$] and the *full scale* [$F(2, 188) = 42.49$].
55
56 Further, *post-hoc* tests with Bonferroni correction showed that the difference between
57
58
59
60

1
2
3
4 Portugal and India and also Portugal and Iran were significant for *sharing* subscale, *caring*
5 subscale and *full* scale ($p = 0.001$, 0.001 and 0.001 respectively). However, the difference
6
7
8 between India and Iran were not statistically significant for the *sharing* subscale, *caring*
9 subscale and *full* scale ($p = 0.171$, $p = 0.841$ and $p = 1$ respectively).
10
11
12

13
14
15 **[Table 3 near here]**
16
17

18
19 These results show some differences and some similarities in audiologists' preferences
20 towards patient-centredness from different countries (see Figure 1). Audiologists in Portugal
21 had significantly greater preference for patient-centredness when compared to audiologists in
22 India and Iran whose preferences did not differ much.
23
24
25
26
27
28

29
30 **[Figure 1 near here]**
31
32

33
34
35 Whilst our sample populations were well matched, with no significant differences with
36 respect to age and experience, this does not exclude some possible influence of these
37 variables on the data. Therefore we elected to include these variables as covariates, and assess
38 if this had an influence on the main effect observed: The data met the necessary assumptions
39 (i.e., linearity, homoscedasticity and homogeneity of regression slopes) and the ANCOVA
40 results with age and duration of work experience as covariates and PPOS scores as dependent
41 variable gave results consistent with the ANOVA, with a significant main effect for the full
42 scale and subscales only and no significant interaction was observed. Thus we conclude that
43 differences exist between the responses from audiologists from these countries in preference
44 for patient-centredness, even after accounting for age and duration of work experience.
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Discussion

This study examined and compared audiologists' preferences for patient-centredness in Portugal, India and Iran. The PPOS scores indicate the self-reported preference for patient-centeredness. An overall mean score per item of greater than 3 for all three countries included suggests that there is a tendency for Audiologists to favour patient-centredness, rather than a clinician-centred approach. This is true for both *caring* and *sharing* subscales. These values can be compared to those observed across other medical specialities⁵. For example, general practitioners and oncology physicians had higher PPOS mean scores (i.e., 4.3 and 5.0 respectively) when compared with physicians with a surgical background (i.e., 2.9). Thus, in general it appears that patient-centred practices vary depending upon the specific duties of the professional. We hypothesise that this could be linked to differences in training routes for medical subspecialties, in combination with the expectation of the role fulfilled by the clinician within their speciality. This is of relevance to Audiology, since training routes vary between countries, with education provision that may follow either a medical, scientific, technician, para-medical model (or a combination thereof)²¹.

From examination of the responses to each item it can be seen that audiologists' preferences for patient-centredness vary depending upon the situation described (see Table 2). For example *item 1* (i.e., audiologist is the one who should decide what gets talked about during an appointment), *item 2* (i.e., most important part of the standard audiological appointment is the hearing test), *item 10* (i.e., clients generally want reassurance rather than information about their audiological condition), and *item 15* (i.e., client must always be aware that the audiologist is in charge) show markedly lower mean scores (2.4-2.8) than the mean PPOS scores (4.6-4.8) in *item 4* (i.e., it is often best for clients if they do not have the full explanation of their audiological condition), *item 7* (i.e., if audiologists are truly good at

1
2
3
4 diagnosis and treatment, the way they relate to clients is not that important) and *item 13* (i.e.,
5 a management plan cannot succeed if it is in conflict with a client's lifestyle or values). The
6 content of the items showing a lower mean score are consistent with traditional audiological
7 practices focusing on application of diagnostic testing, diagnosis and *treatment*, whereas the
8 other items with higher mean scores are more explicit on their focus towards rehabilitation
9 (using terms such as 'management plans', and words such as 'relate'). Similar patterns of
10 PPOS results have been reported in a recent Australian study¹³. Thus it appears that an
11 audiologist's views towards patient-centeredness vary depending whether they are
12 considering their diagnostic or rehabilitative roles, and this is shared across countries. Some
13 researchers suggest that there is a growing trend towards a greater role of client-centred
14 rehabilitation by audiologists^{10, 11}. Therefore; it may be useful to monitor Audiologists'
15 preferences for patient-centeredness over time.
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

33 The study results suggest some country-specific differences and some similarities in the
34 overall preference for patient-centeredness among audiologists from Portugal ($M = 4.2$; $SD =$
35 0.5), India ($M = 3.5$; $SD = 0.6$) and Iran ($M = 3.4$; $SD = 0.4$). Generally, audiologists' in
36 Portugal had a high preference for patient-centredness, when compared to audiologists in
37 India and Iran. Moreover, a recent study found that Australian audiologists¹⁴ have high
38 preference for patient-centredness ($M = 4.46$; $SD = 0.52$), which is similar to Portugal
39 audiologists' preferences reported in the current study. As discussed later, there are a number
40 of possible factors that may affect Audiologist's preferences for patient-centeredness, and it
41 is likely that a number of these factors are more similar between Portugal and Australia than
42 Portugal and India, or Portugal and Iran.
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 When comparing scores across countries the trend for higher PPOS scores provided by
5
6 audiologists from Portugal compared to their peers from India and Iran, was true for almost
7
8 all questionnaire items when analysed individually. However, some variations exist. For
9
10 example, scores for *item 1* (i.e., audiologist is the one who should decide what gets talked
11
12 about during an appointment), was similar among audiologists in all three countries. This
13
14 might reflect a similarity in service delivery that place restricted time allowances on clinical
15
16 session that would encourage the Audiologist to keep conversation ‘on task’. Scores for *item*
17
18 *18* (i.e., when clients look up audiological information on their own, this usually confuses
19
20 more than it helps) followed the reverse trend with audiologists in India and Iran scoring
21
22 higher than audiologists in Portugal, albeit by relatively small differences in score. In this
23
24 case, the ability of the patient population to find relevant information may be related to local
25
26 factors such as internet access and language-specific information resources. *Item 2* had the
27
28 largest difference in score between Portugal and the other two countries (i.e., Although health
29
30 care is less personal these days, this is a small price to pay for audiological advances). The
31
32 responses could have been influenced by how the respondent views recent audiological
33
34 advances. Improvements in technology have occurred at different times in different countries;
35
36 it may be that audiologist’s responses are reflecting their opinion on which technological
37
38 advancements they feel have helped clients, as much as reflecting their opinion on the
39
40 changing personal aspect of healthcare. An example would be if the move from analogue to
41
42 digital technology was more recent for India and Iran; this may be valued more highly against
43
44 a loss of the personal involvement in healthcare than in Portugal, if this development had
45
46 occurred further in the past. Studies from other disciplines have shown that the PPOS scores
47
48 indicating preference for patient-centredness can vary among professionals in different
49
50 countries. For example, medical practitioners’ mean PPOS scores of 4.8 in the USA⁴,
51
52 compared to 3.3 in Greece²².
53
54
55
56
57
58
59
60

1
2
3
4
5
6 The key influencing factors for the differences observed are the local healthcare system,
7 national culture, organisational-related factors (see Grenness et al.²), ethnicity²³ and cross-
8 cultural aspects²⁴ as indicated in studies from other areas. We hypothesise that one of the
9 main contributing factors could be the ‘*culture*’. Geert Hofstede defines culture as ‘*the*
10 *collective programming of the mind distinguishing the members of one group or category of*
11 *people from another*²⁵. Figure 2 represents Hofstede’s dimensions of national culture in
12 Portugal, India and Iran, which include: power distance; individualism; masculinity;
13 uncertainty avoidance; pragmatism; and indulgence²⁵. A greater number of similarities are
14 noticed between India and Iran when compared to Portugal (e.g., individualism, masculinity
15 and uncertainty avoidance). These observations are consistent with a contribution of culture
16 to differences and similarities in preferences for patient-centredness noticed among different
17 countries in this study. It would also be consistent with the previously reported findings of
18 medical practitioners from the USA, a country with a very high score of Individualism,
19 compared to Greece, considered to be a collectivist culture. Given this finding, we argue that
20 there is a need for increased focus on cultural competency for professionals in order to
21 deliver patient-centred care²⁶.

22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42 **[Figure 2 near here]**
43
44
45

46 It is important to note that the current study focused on self-reported preferences for patient-
47 centredness and not the actual clinical behaviour. Previous studies have suggested that the
48 preferences for patient-centredness measured using PPOS correlate well with the actual
49 clinical behaviour of professionals as measured by verbal exchange between patients and
50 professionals⁹. However, not much is known about the patients’ preferences for hearing
51 healthcare services and more importantly for ‘patient-centred healthcare’ within these
52
53
54
55
56
57
58
59
60

1
2
3
4 countries. Further studies with a qualitative design may help explore these aspects. A further
5
6 consideration is to what extent the clinician population will reflect the general ‘culture’ that is
7
8 assigned to a nation: It is likely that this demographic vary from the general population as
9
10 regards educational level in addition to other socioeconomic factors, and the degree of
11
12 difference is likely to be specific to the particular profession, and also country being
13
14 considered.
15
16

17
18
19 Other potential influences on audiologists’ preferences for patient centredness are age,
20
21 duration of work experience and employment type¹³. In the current study no significant
22
23 differences existed between groups in terms of age and duration of work experience. The
24
25 distribution of audiologists among different areas of employment was broadly similar
26
27 between countries. However, differences were noted in terms of participants’ gender between
28
29 countries. The estimates of male/female ratio practicing in Audiology in these countries, as
30
31 indicated by the professional bodies, are 1:4, 1:2 and 1:2 in Portugal, India and Iran
32
33 respectively. The current study sample had a similar gender pattern of audiologists even
34
35 though not exactly matching these ratios. Gender has been found to influence the
36
37 practitioners’ preference for patient-centredness with women displaying a greater preference
38
39 for patient-centredness than male counterparts^{27,28}, although this was not found to be a
40
41 significant factor for audiologists’ preferences for patient-centredness in a large scale
42
43 Australian study¹³. Hence, further exploration of a gender effect in preference for patient-
44
45 centredness is necessary in future studies.
46
47
48
49
50

51 52 ***Study Implications and Future Directions***

53
54 Patient-centredness is important in healthcare as it is linked to patient-outcomes such as
55
56 increased satisfaction, adherence and health outcomes^{29,30} and also to perceived quality of
57
58
59
60

1
2
3
4 service delivery¹⁸. Considering that there is evidence that rehabilitative Audiology patients
5
6 also prefer patient-centred care¹³, this concept has direct clinical implications in hearing
7
8 healthcare.
9

10
11
12 The current study reports some interesting findings about audiologists' preference for patient-
13 centeredness in different countries. However, it might be more appropriate to study patient-
14 centredness of professionals in congruence with patients⁴. For example, although the mean
15 scores in India and Iran were lower than those of Portugal, if the patients in India and Iran
16 have similar preferences for patient-centredness as the professionals then, the care delivery is
17 likely to meet patients' expectations. Further, it would be useful and important to understand
18 how the concept of patient-centredness is understood and valued by both professionals and
19 patients in different countries. If future studies (focussing on both professionals and patients)
20 suggest marked differences, similar to those demonstrated here, it may be necessary to
21 reconceptualise the principle of patient-centredness.
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

37 Given that patient-centredness has been found to be an important factor in patient satisfaction
38 and outcomes, at least in some countries, and since it has been suggested that clinicians can
39 learn to become patient-centred³¹, it may be necessary to include such concepts in training
40 programmes, particularly in cases where practitioners demonstrate a significantly lower
41 preference towards patient-centredness than their patients. Moreover, future studies may also
42 focus on understanding the differences and similarities in preferences towards patient-
43 centredness among sub-cultures within the same country (e.g., different ethnic groups). Such
44 studies may further inform the arguments of researchers who have been advocating the need
45 for cultural competence (the ability of individuals, groups and organisations to effectively
46 interact with individuals with different cultural backgrounds) in the delivery of healthcare
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 services³². Moreover; this may have consequences for the increasingly international
5
6 Audiology workforce¹⁶, both in terms of the migration of audiologists to other countries for
7
8 employment and the provision of distance-learning models of Audiology education. Overall,
9
10 this information may highlight the need to consider patient-centeredness in order to optimise
11
12 hearing healthcare globally.
13

14 15 16 17 ***Strengths and Limitations*** 18

19
20 A response rate of 76% was obtained for this questionnaire-based study and there was
21
22 diversity in the data from audiologists' distributed across three countries. Nevertheless, the
23
24 study has some limitations. For example, aspects such as healthcare delivery models and
25
26 educational system were not controlled for, but may have contributed to the differences and
27
28 similarities noticed in audiologists preferences. However, there was a reasonable spread of
29
30 audiologist practicing in public and private Audiology clinics, and audiologists in all three
31
32 countries were trained to a minimum standard of a Bachelor's degree. A relatively small
33
34 sample size and lack of anonymity in data collection were also limitations of the current
35
36 study. We were aware that a sampling bias may have been present, since audiologists with
37
38 particular preferences may have been more inclined to respond to the questionnaire. The fact
39
40 that identifiable information may have been present in the emailed responses had the
41
42 potential to influence/discourage an individual's response. These biases would have been
43
44 present for all countries.
45
46
47
48
49

50 51 **Conclusion** 52

53
54 The data described here are the first in hearing healthcare to demonstrate specific differences
55
56 and similarities in audiologists' preferences for patient-centeredness across three countries.
57
58 We observed that the two countries with the most similar cultural profile had the most similar
59
60

1
2
3
4 preference level for patient-centred care. There are several factors that might influence
5
6 preference for patient-centred care, and further investigation is required in order to determine
7
8 the role of the education and healthcare system, organisational-related factors, and ethnicity
9
10 in contributing to the differences and similarities noticed. Clinician reported Patient-
11
12 centredness and the cultural aspects of the clinician and patient population are different
13
14 across countries and this may have implications for the training professionals and
15
16 implementation of clinical practice in terms of optimising hearing healthcare across countries.
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Acknowledgements

We gratefully acknowledge Professors Edward Krupat and Louise Hickson for allowing us to use the modified version of the PPOS.

Contributors

VM - Contributed to most parts of the work including data collection, analysis and writing; PG - Contributed to data analysis, interpretation and write up; DT - Contributed to data collection and write up; TA - Contributed to data collection and write up; KR - Contributed to data collection and write up.

Funding

No funding was received to conduct this study.

Ethical Approval

Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data collection in Portugal and India respectively. This kind of study did not require ethical approval under the *Department of Audiology, University of Social Welfare and Rehabilitation Sciences* at Tehran for data collection in Iran.

Data Sharing

No additional data are available.

Conflict of interests

None.

FIGURE LEGENDS:

FIGURE 1: Bar Graphs showing the mean total PPOS Score ('Full Scale'), and the mean PPOS Score for the 'Sharing' and 'Caring' Subscales for Audiologists from Portugal, India and Iran. (*) indicates a significant difference ($P < 0.01$)

FIGURE 2: Bar graph showing Hofstede's cultural dimension values for Portugal, India and Iran. A high score power distance expresses that the less powerful members of a society accept and expect that power is distributed unequally. A high score on Individualism vs Collectivism can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. A high score on 'Masculinity vs Femininity' suggests a preference in society for achievement, heroism, assertiveness and material rewards for success as opposed to cooperation, modesty, caring for the weak and quality of life. A high score on 'Uncertainty Avoidance' suggests members of a society feel uncomfortable with uncertainty and ambiguity. A high score on 'Pragmatism suggests the society encourages thrift and efforts in modern education as a way to prepare for the future, as opposed to relying on time-honoured traditions. A high score on 'Indulgence' suggests the society follows gratification of basic and natural human drives related to enjoying life and having fun, as opposed to restrain in such activities based on social norms.

References

1. Mead N, Bower P. Patient-centredness: A conceptual framework and review of the empirical literature. *Soc Sci Med* 2000;51:1087-1110.
2. Grenness C, Hickson L, Laplante-Lévesque A. et al. Patient-centredness care: A review for rehabilitative audiologists. *Int J Audiol* 2014;53:S60-67.
3. Michie S, Miles J, Weinman J. Patient-centredness in illness: What is it and does it matter? *Patient Educ Couns* 2003;51:197-206.
4. Krupat E, Rosenkranz SL, Yeager CM, et al. The practice orientations of physicians and patients: The effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 2000;39:49-59.
5. Chan CMH, Azman WA. Attitudes and role orientation of doctor-patient fit and patient satisfaction in cancer care. *Singapore Med J* 2012;53(1):52-56.
6. Hogden A, Greenfield D, Nugus P, et al. Engaging in patient decision-making in multidisciplinary care for amyotrophic lateral sclerosis: The views of health professionals. *Patient Prefer Adher* 2012;6:691-701.
7. Umar N, Schollgen I, Terris DD. It is not always about gains: utilities and disutilities associated with treatment features in patients with moderate-to-severe psoriasis. *Patient Prefer Adher* 2012;6:187-184.
8. Levinson W, Roter D, Mullooly J, et al. Physician-patient communication: The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;277:553-559.
9. Shaw WS, Woiszwillo MJ, Krupat E. Further validation of the Patient-Practitioner Orientation Scale (PPOS) from recorded visits for back pain. *Patient Educ Couns* 2012;89:288-291.

10. Sweetow RW, Davis A, Hickson L. Paradigm shift in audiology education. *Audiology Today* 2010;Sept/Oct:32-35.
11. Hickson L. Defining a paradigm shift. *Sem Hear* 2012;33:3-8.
12. Grenness C, Hickson L, Laplante-Lévesque A, et al. Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids. *Int J Audiol* 2014;53:S68-75.
13. Laplante-Lévesque A, Hickson L, Grenness C. An Australian survey of audiologists' preferences for patient-centredness. *Int J Audiol* 2014;53:S76-82.
14. Laplante-Lévesque A, Hickson L, Worrall L. A qualitative study of shared decision making in rehabilitative audiology. *J Acad Rehabil Audiol* 2011;43:27-43
15. Poost-Foroosh L, Jennings MB, Shaw L, et al. Factors in client-clinician interaction that influence hearing aid adoption. *Trends Amplif.* 2011; 15(3):127-39
16. Goulios H, Patuzzi RB. Audiology education and practice from an international perspective. *Int J Audiol* 2008;47:647-664.
17. Zhao F, Manchaiah V, St. Claire L, Danermark B, et al. Exploring the influence of culture on hearing help-seeking and hearing aid uptake: A discussion paper. *Int J Audiol* Submitted.
18. Saha S, Beach MC, Cooper LA. Patient centredness, cultural competency and healthcare quality. *J Natl Med Assoc* 2008;100(11):1275-1285.
19. Krupat E, Putnam SM, Yeager CM. The fit between doctors and patient: Can it be measured? *J Gen Intern Med* 1996;11:134.
20. Beaton DE, Bombardier C, Guillemin F, et al. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000;25(24):3186-3191.
21. Goulios H, Patuzzi RB. Audiology education and practice from an international perspective *Int J of Audiol* 2008;47:647-664

- 1
2
3
4 22. Tsimtsiou Z, Benos A, Garyfallos AA, et al. Predictors of physicians' attitudes toward
5 sharing information with patients and addressing psychosocial needs: A cross-
6 sectional study in Greece. *Health Commun* 2012;27:257-263.
7
8
9
10
11 23. Cooper LA, Roter D, Johnson RL, Ford DE, Steinwachs DM, et al. Patient-centred
12 communication, ratings of care, and concordance of patient and physician race. *Ann*
13 *Intern Med* 2003;139:907-915.
14
15
16
17 24. Al-Bawardy R, Blatt B, Al-Shohaib S, et al. Cross-cultural comparison of the patient-
18 centredness of the hidden curriculum between a Saudi Arabia and 9 US medical
19 schools. *Med Educ Online* 2009;14:19. doi: [10.3885/meo.2009.T0000144](https://doi.org/10.3885/meo.2009.T0000144)
20
21
22
23 25. Hofstede Centre. National Cultural Dimensions. Available from: [http://geert-](http://geert-hofstede.com/dimensions.html)
24 [hofstede.com/dimensions.html](http://geert-hofstede.com/dimensions.html) (accessed on April 24, 2014).
25
26
27
28 26. Epner DE, Baile WF. Patient-centred care: the key to cultural competence. *Ann Oncol*
29 2012;23(S3):33-42.
30
31
32 27. Kaplan RM, Gandek B, Greenfield S, et al. Patient and visit characteristics related to
33 physicians participatory style: Results from medical outcome study. *Med Care*
34 1995;33:1176-1183.
35
36
37
38 28. Roter D, Hall J. *Doctors talking with patients, Patients talking with doctors*.
39 Westport: Auburn House, 2006.
40
41
42
43 29. DiMatteo MR, Giordani PJ, Lepper HS, et al. Patient adherence and medical
44 treatment outcomes: A meta-analysis. *Med Care* 2002;40:794-811.
45
46
47
48 30. Swenson SL, Buell S, Zettler P, et al. Patient-centered communication: Do patients
49 really prefer it? *J Gen Intern Med* 2004;19:1069-1080.
50
51
52
53 31. Lewin S, Skea ZC, Entwistle VA, Zwarenstein M, et al. Interventions for providers to
54 promote a patient-centred approach in clinical consultations. *Cochrane Database Syst*
55 *Rev* 2009;1:1-60.
56
57
58
59
60

- 1
2
3
4 32. Campinha-Bacote J. The process of cultural competence in the delivery of healthcare
5 services: A model of care. *J Transcult Nurs* 2002;13(3):181-184.
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Tables

Table 1: Demographic information

	All participants (n = 191)	Portugal (n = 55)	India (n = 78)	Iran (n = 58)
Age in years (Mean±SD)	30.9±8.4	31.0±8.4	29.6±8.6	32.5±8.0
Gender (%)				
▪ Male	37	20	55	30
▪ Female	63	80	45	70
Work set-up (%)				
▪ Clinic public	35	23	39	41
▪ Clinic private	50	51	61	33
▪ Clinic both	12	15	0	26
▪ Education	1	2	0	0
▪ Not known	2	9	0	0
Education (%)				
▪ Bachelors	47	72	18	60
▪ Masters	48	22	74	40
▪ Doctorate	5	6	8	0
Work experience in years (Mean±SD)	7.2±8.1	7.8±8.2	6.1±8.8	8.1±6.5

Table 2: Modified patient practitioner orientation scale (PPOS): Mean scores and standard deviation

	All participants (n = 191)	Portugal (n = 55)	India (n = 78)	Iran (n = 58)
PPOS Items (Mean±SD)				
1. The audiologist is the one who should decide what gets talked about during an appointment.	2.4±1.1	2.4±1.2	2.3±1.2	2.5±1.2
2. Although health care is less personal these days, this is a small price to pay for audiological advances.	3.0±1.4	4.3±1.2	2.7±1.2	2.1±1.0
3. The most important part of the standard audiological appointment is the hearing test.	2.7±1.4	3.4±1.2	2.5±1.5	2.3±1.1
4. It is often best for clients if they do not have the full explanation of their audiological condition.	4.6±1.3	5.0±1.0	4.5±1.5	4.2±1.3
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own.	3.2±1.7	4.2±1.4	3.4±1.6	2.0±1.3
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters.	4.4±1.3	5.0±1.0	4.0±1.3	4.2±1.4
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important.	4.8±1.2	5.5±0.7	4.4±1.3	4.6±1.2
8. Many clients continue asking questions even though they are not learning anything new.	3.2±1.2	3.4±1.2	3.2±1.2	3.0±1.2
9. Clients should be treated as if they were partners with the audiologist, equal in power and status.*	4.1±1.6	4.7±1.6	3.7±1.5	4.0±1.5
10. Clients generally want reassurance rather than information about their audiological condition.	2.8±1.1	3.3±1.0	2.7±1.1	2.5±1.1
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success.	4.3±1.4	4.6±1.1	3.8±1.4	4.6±1.3

12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust.	3.8±1.2	4.6±1.0	3.7±1.1	3.1±1.2
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values.*	4.7±1.1	4.7±1.1	4.6±1.0	4.7±1.2
14. Most clients want to get in and out of the audiologist's office as quickly as possible.	3.5±1.4	4.4±1.2	3.3±1.2	2.9±1.3
15. The client must always be aware that the audiologist is in charge.	2.6±1.3	2.7±1.2	2.4±1.1	2.9±1.5
16. It is not that important to know a client's culture and background in order to treat the client's audiological condition.	4.6±1.3	5.3±0.9	4.3±1.4	4.6±1.2
17. Humour is a major ingredient in the audiologist's management of the client.*	4.1±1.3	4.8±1.0	3.8±1.3	3.8±1.4
18. When clients look up audiological information on their own, this usually confuses more than it helps.	2.9±1.3	2.6±1.0	2.8±1.4	3.4±1.3
PPOS Scales (Mean±SD)				
▪ Full scale	3.6±0.6	4.2±0.5	3.5±0.6	3.4±0.4
▪ Sharing subscale	3.6±0.7	4.2±0.6	3.4±0.7	3.2±0.5
▪ Caring subscale	3.7±0.6	4.1±0.5	3.5±0.5	3.6±0.5

Note: Score of 1 (strongly agree) = most clinician-centred; Score of 6 (strongly disagree) = most patient-centred. Items 9, 13 and 17 (*) are reversely worded items which were reverse scored.

Table 3: Differences in audiologists' preferences for patient-centredness between countries

	Degree of freedom	F-test	P
Sharing	2	39.76	< 0.001
Caring	2	24.61	< 0.001
Full scale	2	42.49	< 0.001

1
2
3
4 **Audiologists' preferences for patient-centredness: A cross-**
5
6
7 **sectional questionnaire study of cross-cultural differences and**
8
9
10 **similarities among professionals in Portugal, India and Iran**
11
12
13

14 **Vinaya Manchaiah^{1,2}, Philip A. Gomersall¹, David Tomé³, Tayebeh Ahmadi⁴ &**
15 **Rajalakshmi Krishna⁵**
16
17

- 18
19
20 1. Department of Vision and Hearing Sciences, Anglia Ruskin University, Cambridge,
21 United Kingdom
22
23 2. Linnaeus Centre HEAD, Department of Behavioral Sciences and Learning, The
24 Swedish Institute for Disability Research, Linköping University, Linköping, Sweden
25
26 3. Department of Audiology, School of Allied Health Sciences, Polytechnic Institute of
27 Porto, Vila Nova de Gaia, Portugal
28
29 4. Department of Audiology, University of Social Welfare and Rehabilitation Sciences,
30 Tehran, Iran
31
32 5. All India Institute of Speech and Hearing, University of Mysore, Mysore, India
33
34
35
36
37
38
39
40
41

42 **Corresponding Author:** Philip A. Gomersall

43
44 **Address:** Department of Vision and Hearing Sciences, Coslett 204, Anglia Ruskin
45 University, Cambridge CB1 1PT, United Kingdom
46

47 **Email:** phil.gomersall@anglia.ac.uk; **Tel:** +44 (0)1223 698653
48
49
50
51
52
53
54
55
56
57
58
59
60

Abstract

Objective: Patient-centredness has become one of the important aspects of health service delivery, however, a limited number of studies exist that focus on this concept in the domain of hearing healthcare. The objective of this study was to examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran. **Design:** The study used a cross-sectional survey design with audiologists recruited from three different countries.

Participants: A total of 191 fully-completed responses were included in the analysis (55 from Portugal, 78 from India and 58 from Iran). **Main outcome measure:** The Patient-Practitioner Orientation Scale.

Results: Patient-Practitioner Orientation Scale mean scores suggest that Audiologists have a preference for patient-centredness (i.e., mean of 3.6 in 5 point scale).

However, marked differences were observed between specific PPOS items suggesting these preferences vary across clinical situations. A significant level of difference ($p < 0.001$) was found between audiologists' preferences for patient-centredness in three countries.

Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran, although no significant differences were found in terms of age and duration of experience among these sample populations. **Conclusion:** There are differences and similarities in audiologists' preferences for patient-centredness among countries. These findings may have implications for the training of professionals and also for clinical practice in terms of optimising hearing healthcare across countries.

Key Words

Patient-centeredness, Audiology, hearing healthcare, cross-culture

Summary

Article Focus

- To examine and compare audiologists' preferences for patient-centredness in Portugal, India and Iran.

Key Message

- A significant level of difference was found between audiologists' preferences for patient-centredness in three countries.
- Audiologists in Portugal had a greater preference for patient-centredness when compared to audiologists in India and Iran.
- These findings may have implications for the training of professionals and for clinical practice in terms of optimising hearing healthcare across countries.

Strengths and Weakness

- A response rate of 76% was obtained for this questionnaire-based study and there was diversity in the data from audiologists distributed across three countries.
- Some variables such as differing healthcare delivery models and educational systems were not controlled for, and may have contributed to the differences and similarities noticed in audiologists preferences.
- A sampling bias may have been present, since audiologists with particular preferences may have been more inclined to respond to the questionnaire.
- The fact that identifiable information may have been present in the emailed responses had the potential to influence/discourage an individual's response.

Introduction

There has been an increase in advocacy towards patients' involvement in their health and care delivery, hence the concept 'patient-centredness' has received much attention over the past few decades¹. Patient-centeredness involves aspects such as increased importance placed on patient participation, self-determination of patients in their healthcare (i.e., the rights and abilities of patients to make their own choices and decisions about the medical care and treatment they receive), and the creation of a power-balanced therapeutic relationship between patients and professionals². Although there has been little consensus over the meaning of this concept universally, patient-centredness has been described in the field of general practice with five main dimensions: (1) biopsychosocial perspective; (2) patient as a person; (3) shared knowledge and power; (4) therapeutic alliance; and (5) clinician as a person¹. Patient-centeredness has been suggested to be fundamental part of the successful management of chronic health conditions³.

Studies from a variety of areas of healthcare (including oncology, skin disorders, amyotrophic lateral sclerosis) have suggested that the health professional's preferences towards patient-centeredness is important in determining outcomes, including patient satisfaction⁴⁻⁷. A shortfall in patient-centeredness has also been linked to malpractice claims⁸, and in general a measured preference for patient-centeredness correlates well with clinical practices such as open communication and a positive rapport between patient and clinician⁹.

The profession of Audiology is particularly interesting in this context since, traditionally, there has been a focus on the technological aspects of hearing healthcare¹⁰. Some researchers believe that the last two decades has seen a paradigm shift; moving from a focus

1
2
3
4 on the technological aspects of hearing healthcare to a more person-centred approach to
5
6 rehabilitation^{10 11}. The empirical evidence for this shift is limited, with only a small number
7
8 of published studies on patient-centeredness specific to audiology: Grenness et al.¹² studied
9
10 the views of older adults who own hearing aids in order to further define patient-centred care
11
12 in the context of audiological rehabilitation. Interviews were conducted with ten older adults
13
14 with hearing aids, exploring their views and the data were analysed using qualitative content
15
16 analysis. The results suggested three dimensions: (1) the therapeutic relationship; (2) the
17
18 players - patient and audiologist; and (3) the clinical process, and an overarching theme of
19
20 individualised care specific to audiological rehabilitation.
21
22
23
24
25

26 A recent study focussing specifically on Audiologists in Australia found that they report a
27
28 high preference for patient-centredness¹³. Moreover, demographic factors such as age,
29
30 duration of work experience and employment type (i.e., public/ private) acted as influencing
31
32 factors towards explaining patient-centredness. For example, older audiologists and those
33
34 who had practiced longer had a significantly greater preference for patient-centeredness when
35
36 compared to younger and less-experienced audiologists. This is the only published study that
37
38 has explicitly explored audiologists' preferences towards patient-centredness.
39
40
41

42 Two further studies have been conducted in the field of Audiology that, whilst not explicitly
43
44 focusing on patient centeredness as a distinct entity, are highly relevant: Laplante-Lévesque
45
46 et al conducted a qualitative study, exploring shared decision making in adults with acquired
47
48 hearing impairment, which suggested that patients wanted rehabilitative audiologists to hear
49
50 their experiences and preferences and to tailor their interventions accordingly¹⁴. Poost-
51
52 Foroosh et al.¹⁵ studied the factors in the interaction between Audiologists and clients in the
53
54 decision to purchase a hearing aid. The study asked twelve clients with acquired hearing loss
55
56 and ten audiologists, from both University and private practices, to supply statements
57
58
59
60

1
2
3
4 regarding which clinician-patient factors they felt influenced the decision to purchase a
5
6 hearing aid. Client-centred interaction was identified as one of two major themes in the
7
8 responses provided (client-empowerment was the other).
9

10
11
12 In all cases, the research discussed above consistently demonstrates the significant value that
13
14 patients place in the relationship with the clinician. Across the studies it can be seen that
15
16 different clinician-specific factors were found to influence the degree of patient-centeredness.
17
18 As of yet there is little strong evidence for improved rehabilitation outcomes, although
19
20 hearing aid purchase was observed to be positively influenced by more client-centred
21
22 practice. The reader is referred to a recent literature review by Grenness et al.² for further
23
24 details on patient-centred care in relation to rehabilitative Audiology.
25
26
27
28
29

30
31 Given the clinician-specific differences observed in the studies discussed above, and the fact
32
33 that Audiology practices vary considerably across countries¹⁶, it would be useful to examine
34
35 audiologists' preferences for patient-centeredness across different countries which vary in
36
37 terms of culture and healthcare systems. Moreover; it has been highlighted in general that
38
39 there are few cross-cultural studies in the area of hearing healthcare, highlighting the need for
40
41 such studies¹⁸
42
43
44
45

46 Cultural competence is a key aspect that is known to influence healthcare quality^{17 18}. We
47
48 hypothesise that the present culture to which an individual is exposed, as well as their cultural
49
50 background, can influence both patients' and providers' preferences in healthcare and
51
52 towards patient-centredness. We were particularly interested in understanding and comparing
53
54 the preferences for patient-centeredness among Audiologists in European and Asian
55
56 countries. Asian countries, compared to European countries, are considered to be more
57
58
59
60

1
2
3
4 collectivist societies, with a greater emphasis placed on the role of the individual as part of a
5
6 local group and/or community with less of a tendency to focus on ‘looking after oneself’²⁴.
7
8 Further to this, it has been posited that Asian countries have a tendency towards a high
9
10 ‘power distance’ within levels of organisations – this reflects how willing the less powerful
11
12 members of an organisation or group are to accept an unequal distribution of power²⁴. In the
13
14 context of patient-centredness such cultural effects might result in different opinions towards
15
16 a hierarchical ‘paternalistic’ approach to audiological management (where the clinician may
17
18 display an attitude of superiority over the patient), versus a patient centred-approach.
19
20
21
22
23
24
25

26 The aim of the current study was to examine and compare audiologists’ preferences for
27
28 patient-centredness in Portugal, India and Iran. These countries vary in terms of healthcare
29
30 system, culture and socio-economic status. However, they were chosen as they all have a
31
32 minimum educational level requirement of a Bachelor’s degree education for Audiologists,
33
34 and also due to convenience in data collection.
35
36
37
38
39

40 **Method**

41 *Ethical Considerations*

42
43 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
44
45 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
46
47 collection in Portugal and India respectively. This kind of study did not require ethical
48
49 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
50
51 *Sciences* at Tehran for data collection in Iran.
52
53
54
55
56
57

58 *Study Design and Participants*

1
2
3
4 The current study used a cross-sectional survey design and purposive sampling to recruit
5
6 participants. The email mailing list was obtained from university and professional
7
8 associations which consisted of audiologists distributed throughout each of the three
9
10 countries. The Patient-Practitioner Orientation Scale (PPOS) questionnaire, with some
11
12 additional demographics questions (i.e., age, gender, number of years of experience, work
13
14 set-up, country of origin and country in which currently practicing), was sent to 260
15
16 Audiologists (80 in Portugal, 110 in India and 70 in Iran) via email, requesting them to
17
18 complete and return back to the researcher by email. Two email reminders were sent for non-
19
20 respondents after two and four weeks respectively. As the Email ID might have contained
21
22 some information that may have helped identify the individual, the survey was not fully
23
24 anonymous. In the interest of keeping the survey short, only limited demographic information
25
26 was requested and the choice was made to consider the most important aspects based on the
27
28 findings of the previous studies¹²⁻¹⁴, as discussed in the introduction.
29
30
31
32
33
34

35 *Questionnaire*

36
37 The PPOS was developed by Krupat et al.¹⁹ to study physician preferences towards patient-
38
39 centredness. However, a modified version of the PPOS that has previously been used to study
40
41 audiologists' preferences towards patient-centredness was used in the current study¹³. This
42
43 modified version of the PPOS was found to have acceptable internal consistency ($\alpha = 0.78$).
44
45 This scale has eighteen questions which are scored on a 6-point Likert scale (1 = strongly
46
47 agree; 6 = strongly disagree). The total score ranges from 18 (most audiologist-centred) to
48
49 108 (most patient-centred), and there are two sub-scales: The first nine-item sub-scale,
50
51 *sharing*, reflects the extent to which the respondent believes that patients desire information
52
53 and should be part of the decision making process (e.g., patients should be treated as if they
54
55 were partners with the audiologists, equal in power and status). The other nine-item sub-
56
57
58
59
60

1
2
3
4 scale, *caring*, reflects the extent to which the respondent sees the patient's expectations,
5
6 feelings, and life circumstances as critical elements in the treatment process (e.g., a treatment
7
8 plan cannot succeed if it is in conflict with a patient's lifestyle or values).
9

10
11
12 An English version of the questionnaire was administered in India. Portuguese and Farsi
13 translated versions were used in Portugal and Iran respectively. The questionnaire translation
14
15 process was aimed at achieving different language versions of the English instrument that are
16
17 conceptually equivalent in each of the target countries/cultures. That is, the focus was on
18
19 cross-cultural and conceptual, rather than on linguistic/literal equivalence. We followed the
20
21 well accepted forward-translations and back-translations method²⁰. This process involved
22
23 four main stages: forward translation; expert back translation; review and resolution of any
24
25 discrepancies; and pre-testing with five participants each, in both Portugal and Iran.
26
27
28
29
30
31
32

33 **Data Analysis**

34
35 In the first instance, descriptive statistics (i.e., mean, standard deviation), a test of normality
36
37 and a test of homogeneity of variance were performed. Mean total PPOS scores for
38
39 audiologists from three countries were compared using an independent one-way analysis of
40
41 variance (ANOVA). An alpha level of 0.01 was used to determine significance. Bonferroni
42
43 *post-hoc* analysis was performed to further examine the relationship between groups. Further,
44
45 a one-way analysis of covariance (ANCOVA) was performed with age and duration of work
46
47 experience as covariates in order to exclude the influence of these variables on the observed
48
49 differences between the group means.
50
51
52
53
54

55 **Results**

1
2
3
4 A total of 198 responses (response rate of 76%) were received. This included: 55 responses
5
6 from Portugal (response rate of 69%); 82 responses from India (response rate of 75%); and
7
8 61 responses from Iran (response rate of 87%). However, three responses from Iran
9
10 (incomplete data) and four responses from India (audiologists currently practicing in a
11
12 different country) were excluded. A total of 191 responses (i.e., 73%) were included in the
13
14 analysis (55 from Portugal, 78 from India and 58 from Iran). Table 1 presents the
15
16 demographic information and Table 2 presents PPOS scores. ANOVA showed no difference
17
18 between groups in terms of age [$F(2, 188) = 2.13, p = 0.121$] and also duration of work
19
20 experience [$F(2, 188) = 1.16, p = 0.313$].
21
22

23
24 [Table 1 near here]

25
26 [Table 2 near here]

27
28
29
30 Data for both full-scale and subscales were found to be normally distributed (based on
31
32 Kolmogorov-Smirnov test and visual examination of histograms). Homogeneity of variances
33
34 (based on Levene's test) was found for *caring* and *total mean* ($p = 0.625$ and 0.129
35
36 respectively) and not for *sharing* ($p = 0.020$). Since our data were found to be normally
37
38 distributed, we elected to use ANOVA for our analysis, despite the fact that homogeneity of
39
40 variances could not be assumed for the *sharing* subscale. A robust procedures (Welch and
41
42 Brown-Forsythe) test was performed to check ANOVA findings which indicated the same
43
44 significant differences between group means ($p < 0.001$ in all cases).
45
46
47
48

49
50 The PPOS mean scores from each population were analysed using a one way between-
51
52 subjects ANOVA (see Table 3). A significant result was found for *sharing* subscale [$F(2,$
53
54 $188) = 39.76$], *caring* subscale [$F(2, 188) = 24.61$] and the *full* scale [$F(2, 188) = 42.49$].
55
56 Further, *post-hoc* tests with Bonferroni correction showed that the difference between
57
58
59
60

1
2
3
4 Portugal and India and also Portugal and Iran were significant for *sharing* subscale, *caring*
5 subscale and *full* scale ($p = 0.001$, 0.001 and 0.001 respectively). However, the difference
6 between India and Iran were not statistically significant for the *sharing* subscale, *caring*
7 subscale and *full* scale ($p = 0.171$, $p = 0.841$ and $p = 1$ respectively).
8
9
10
11
12

13
14
15 **[Table 3 near here]**
16
17

18
19 These results show some differences and some similarities in audiologists' preferences
20 towards patient-centredness from different countries (see Figure 1). Audiologists in Portugal
21 had significantly greater preference for patient-centredness when compared to audiologists in
22 India and Iran whose preferences did not differ much.
23
24
25
26
27
28
29

30 **[Figure 1 near here]**
31
32
33
34

35 Whilst our sample populations were well matched, with no significant differences with
36 respect to age and experience, this does not exclude some possible influence of these
37 variables on the data. Therefore we elected to include these variables as covariates, and assess
38 if this had an influence on the main effect observed: The data met the necessary assumptions
39 (i.e., linearity, homoscedasticity and homogeneity of regression slopes) and the ANCOVA
40 results with age and duration of work experience as covariates and PPOS scores as dependent
41 variable gave results consistent with the ANOVA, with a significant main effect for the full
42 scale and subscales only and no significant interaction was observed. Thus we conclude that
43 differences exist between the responses from audiologists from these countries in preference
44 for patient-centredness, even after accounting for age and duration of work experience.
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Discussion

This study examined and compared audiologists' preferences for patient-centredness in Portugal, India and Iran. The PPOS scores indicate the self-reported preference for patient-centeredness. An overall mean score per item of greater than 3 for all three countries included suggests that there is a tendency for Audiologists to favour patient-centredness, rather than a clinician-centred approach. This is true for both *caring* and *sharing* subscales. These values can be compared to those observed across other medical specialities⁵. For example, general practitioners and oncology physicians had higher PPOS mean scores (i.e., 4.3 and 5.0 respectively) when compared with physicians with a surgical background (i.e., 2.9). Thus, in general it appears that patient-centred practices vary depending upon the specific duties of the professional. We hypothesise that this could be linked to differences in training routes for medical subspecialties, in combination with the expectation of the role fulfilled by the clinician within their speciality. This is of relevance to Audiology, since training routes vary between countries, with education provision that may follow either a medical, scientific, technician, para-medical model (or a combination thereof)²¹.

From examination of the responses to each item it can be seen that audiologists' preferences for patient-centredness vary depending upon the situation described (see Table 2). For example *item 1* (i.e., audiologist is the one who should decide what gets talked about during an appointment), *item 2* (i.e., most important part of the standard audiological appointment is the hearing test), *item 10* (i.e., clients generally want reassurance rather than information about their audiological condition), and *item 15* (i.e., client must always be aware that the audiologist is in charge) show markedly lower mean scores (2.4-2.8) than the mean PPOS scores (4.6-4.8) in *item 4* (i.e., it is often best for clients if they do not have the full explanation of their audiological condition), *item 7* (i.e., if audiologists are truly good at

1
2
3
4 diagnosis and treatment, the way they relate to clients is not that important) and *item 13* (i.e.,
5
6 a management plan cannot succeed if it is in conflict with a client's lifestyle or values). The
7
8 content of the items showing a lower mean score are consistent with traditional audiological
9
10 practices focusing on application of diagnostic testing, diagnosis and *treatment*, whereas the
11
12 other items with higher mean scores are more explicit on their focus towards rehabilitation
13
14 (using terms such as 'management plans', and words such as 'relate'). Similar patterns of
15
16 PPOS results have been reported in a recent Australian study¹³. Thus it appears that an
17
18 audiologist's views towards patient-centeredness vary depending whether they are
19
20 considering their diagnostic or rehabilitative roles, and this is shared across countries. Some
21
22 researchers suggest that there is a growing trend towards a greater role of client-centred
23
24 rehabilitation by audiologists^{10, 11}. Therefore; it may be useful to monitor Audiologists'
25
26 preferences for patient-centeredness over time.
27
28
29
30
31
32

33 The study results suggest some country-specific differences and some similarities in the
34
35 overall preference for patient-centeredness among audiologists from Portugal ($M = 4.2$; $SD =$
36
37 0.5), India ($M = 3.5$; $SD = 0.6$) and Iran ($M = 3.4$; $SD = 0.4$). Generally, audiologists' in
38
39 Portugal had a high preference for patient-centredness, when compared to audiologists in
40
41 India and Iran. Moreover, a recent study found that Australian audiologists¹⁴ have high
42
43 preference for patient-centredness ($M = 4.46$; $SD = 0.52$), which is similar to Portugal
44
45 audiologists' preferences reported in the current study. As discussed later, there are a number
46
47 of possible factors that may affect Audiologist's preferences for patient-centeredness, and it
48
49 is likely that a number of these factors are more similar between Portugal and Australia than
50
51 Portugal and India, or Portugal and Iran.
52
53
54
55
56
57
58
59
60

1
2
3
4 When comparing scores across countries the trend for higher PPOS scores provided by
5
6 audiologists from Portugal compared to their peers from India and Iran, was true for almost
7
8 all questionnaire items when analysed individually. However, some variations exist. For
9
10 example, scores for *item 1* (i.e., audiologist is the one who should decide what gets talked
11
12 about during an appointment), was similar among audiologists in all three countries. This
13
14 might reflect a similarity in service delivery that place restricted time allowances on clinical
15
16 session that would encourage the Audiologist to keep conversation ‘on task’. Scores for *item*
17
18 *18* (i.e., when clients look up audiological information on their own, this usually confuses
19
20 more than it helps) followed the reverse trend with audiologists in India and Iran scoring
21
22 higher than audiologists in Portugal, albeit by relatively small differences in score. In this
23
24 case, the ability of the patient population to find relevant information may be related to local
25
26 factors such as internet access and language-specific information resources. *Item 2* had the
27
28 largest difference in score between Portugal and the other two countries (i.e., Although health
29
30 care is less personal these days, this is a small price to pay for audiological advances). The
31
32 responses could have been influenced by how the respondent views recent audiological
33
34 advances. Improvements in technology have occurred at different times in different countries;
35
36 it may be that audiologist’s responses are reflecting their opinion on which technological
37
38 advancements they feel have helped clients, as much as reflecting their opinion on the
39
40 changing personal aspect of healthcare. An example would be if the move from analogue to
41
42 digital technology was more recent for India and Iran; this may be valued more highly against
43
44 a loss of the personal involvement in healthcare than in Portugal, if this development had
45
46 occurred further in the past. Studies from other disciplines have shown that the PPOS scores
47
48 indicating preference for patient-centredness can vary among professionals in different
49
50 countries. For example, medical practitioners’ mean PPOS scores of 4.8 in the USA⁴,
51
52 compared to 3.3 in Greece²².
53
54
55
56
57
58
59
60

1
2
3
4
5
6 The key influencing factors for the differences observed are the local healthcare system,
7 national culture, organisational-related factors (see Grenness et al.²), ethnicity²³ and cross-
8 cultural aspects²⁴ as indicated in studies from other areas. We hypothesise that one of the
9 main contributing factors could be the ‘*culture*’. Geert Hofstede defines culture as ‘*the*
10 *collective programming of the mind distinguishing the members of one group or category of*
11 *people from another*²⁵. Figure 2 represents Hofstede’s dimensions of national culture in
12 Portugal, India and Iran, which include: power distance; individualism; masculinity;
13 uncertainty avoidance; pragmatism; and indulgence²⁵. A greater number of similarities are
14 noticed between India and Iran when compared to Portugal (e.g., individualism, masculinity
15 and uncertainty avoidance). These observations are consistent with a contribution of culture
16 to differences and similarities in preferences for patient-centredness noticed among different
17 countries in this study. It would also be consistent with the previously reported findings of
18 medical practitioners from the USA, a country with a very high score of Individualism,
19 compared to Greece, considered to be a collectivist culture. Given this finding, we argue that
20 there is a need for increased focus on cultural competency for professionals in order to
21 deliver patient-centred care²⁶.

22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42 **[Figure 2 near here]**
43
44
45

46 It is important to note that the current study focused on self-reported preferences for patient-
47 centredness and not the actual clinical behaviour. Previous studies have suggested that the
48 preferences for patient-centredness measured using PPOS correlate well with the actual
49 clinical behaviour of professionals as measured by verbal exchange between patients and
50 professionals⁹. However, not much is known about the patients’ preferences for hearing
51 healthcare services and more importantly for ‘patient-centred healthcare’ within these
52
53
54
55
56
57
58
59
60

1
2
3
4 countries. Further studies with a qualitative design may help explore these aspects. A further
5
6 consideration is to what extent the clinician population will reflect the general ‘culture’ that is
7
8 assigned to a nation: It is likely that this demographic vary from the general population as
9
10 regards educational level in addition to other socioeconomic factors, and the degree of
11
12 difference is likely to be specific to the particular profession, and also country being
13
14 considered.
15
16
17
18
19

20 Other potential influences on audiologists’ preferences for patient centredness are age,
21
22 duration of work experience and employment type¹³. In the current study no significant
23
24 differences existed between groups in terms of age and duration of work experience. The
25
26 distribution of audiologists among different areas of employment was broadly similar
27
28 between countries. However, differences were noted in terms of participants’ gender between
29
30 countries. The estimates of male/female ratio practicing in Audiology in these countries, as
31
32 indicated by the professional bodies, are 1:4, 1:2 and 1:2 in Portugal, India and Iran
33
34 respectively. The current study sample had a similar gender pattern of audiologists even
35
36 though not exactly matching these ratios. Gender has been found to influence the
37
38 practitioners’ preference for patient-centredness with women displaying a greater preference
39
40 for patient-centredness than male counterparts^{27 28}, although this was not found to be a
41
42 significant factor for audiologists’ preferences for patient-centredness in a large scale
43
44 Australian study¹³. Hence, further exploration of a gender effect in preference for patient-
45
46 centredness is necessary in future studies.
47
48
49
50
51
52

53 ***Study Implications and Future Directions***

54
55 Patient-centredness is important in healthcare as it is linked to patient-outcomes such as
56
57 increased satisfaction, adherence and health outcomes^{29 30} and also to perceived quality of
58
59
60

1
2
3
4 service delivery¹⁸. Considering that there is evidence that rehabilitative Audiology patients
5
6 also prefer patient-centred care¹³, this concept has direct clinical implications in hearing
7
8 healthcare.
9

10
11
12 The current study reports some interesting findings about audiologists' preference for patient-
13 centeredness in different countries. However, it might be more appropriate to study patient-
14 centredness of professionals in congruence with patients⁴. For example, although the mean
15 scores in India and Iran were lower than those of Portugal, if the patients in India and Iran
16 have similar preferences for patient-centredness as the professionals then, the care delivery is
17 likely to meet patients' expectations. Further, it would be useful and important to understand
18 how the concept of patient-centredness is understood and valued by both professionals and
19 patients in different countries. If future studies (focussing on both professionals and patients)
20 suggest marked differences, similar to those demonstrated here, it may be necessary to
21 reconceptualise the principle of patient-centredness.
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

37 Given that patient-centredness has been found to be an important factor in patient satisfaction
38 and outcomes, at least in some countries, and since it has been suggested that clinicians can
39 learn to become patient-centred³¹, it may be necessary to include such concepts in training
40 programmes, particularly in cases where practitioners demonstrate a significantly lower
41 preference towards patient-centredness than their patients. Moreover, future studies may also
42 focus on understanding the differences and similarities in preferences towards patient-
43 centredness among sub-cultures within the same country (e.g., different ethnic groups). Such
44 studies may further inform the arguments of researchers who have been advocating the need
45 for cultural competence (the ability of individuals, groups and organisations to effectively
46 interact with individuals with different cultural backgrounds) in the delivery of healthcare
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4 services³². Moreover; this may have consequences for the increasingly international
5
6 Audiology workforce¹⁶, both in terms of the migration of audiologists to other countries for
7
8 **employment** and the provision of distance-learning models of Audiology education. **Overall,**
9
10 **this information may highlight the need to consider patient-centeredness in order to optimise**
11
12 **hearing healthcare globally.**

13 14 15 16 17 ***Strengths and Limitations***

18
19 A response rate of 76% was obtained for this questionnaire-based study and there was
20
21 diversity in the data from audiologists' distributed across three countries. Nevertheless, the
22
23 study has some limitations. For example, aspects such as healthcare delivery models and
24
25 educational system were not controlled for, but may have contributed to the differences and
26
27 similarities noticed in audiologists preferences. However, there was a reasonable spread of
28
29 audiologist practicing in public and private Audiology clinics, and audiologists in all three
30
31 countries were trained to a minimum standard of a Bachelor's degree. A relatively small
32
33 sample size and lack of anonymity in data collection were also limitations of the current
34
35 study. We were aware that a sampling bias may have been present, since audiologists with
36
37 particular preferences may have been more inclined to respond to the questionnaire. The fact
38
39 that identifiable information may have been present in the emailed responses had the
40
41 potential to influence/discourage an individual's response. These biases would have been
42
43 present for all countries.
44
45
46
47
48
49

50 51 **Conclusion**

52
53 The data described here are the first in hearing healthcare to demonstrate specific differences
54
55 and similarities in audiologists' preferences for patient-centeredness across three countries.
56
57 We observed that the two countries with the most similar cultural profile had the most similar
58
59
60

1
2
3
4 preference level for patient-centred care. There are several factors that might influence
5
6 preference for patient-centred care, and further investigation is required in order to determine
7
8 the role of the education and healthcare system, organisational-related factors, and ethnicity
9
10 in contributing to the differences and similarities noticed. Clinician reported Patient-
11
12 centredness and the cultural aspects of the clinician and patient population are different
13
14 across countries and this may have implications for the training professionals and
15
16 implementation of clinical practice in terms of optimising hearing healthcare across countries.
17
18
19
20

21 **Acknowledgements**

22
23
24 We gratefully acknowledge Professors Edward Krupat and Louise Hickson for allowing us to
25
26 use the modified version of the PPOS.
27
28
29
30

31 **Contributors**

32
33 VM - Contributed to most parts of the work including data collection, analysis and writing;
34
35 PG - Contributed to data analysis, interpretation and write up; DT - Contributed to data
36
37 collection and write up; TA - Contributed to data collection and write up; KR - Contributed to
38
39 data collection and write up.
40
41
42
43
44

45 **Funding**

46
47 No funding was received to conduct this study.
48
49
50
51

52 **Ethical Approval**

53
54 Ethical approval was obtained from the *School of Allied Health Sciences, Polytechnic*
55
56 *Institute of Porto* at Porto and *All India Institute of Speech and Hearing* at Mysore for data
57
58
59
60

1
2
3
4 collection in Portugal and India respectively. This kind of study did not require ethical
5
6 approval under the *Department of Audiology, University of Social Welfare and Rehabilitation*
7
8 *Sciences* at Tehran for data collection in Iran.
9

10 11 12 13 **Data Sharing**

14
15 No additional data are available.
16
17

18 19 20 **Conflict of interests**

21
22 None.
23
24
25
26

27 **References**

- 28
29
30 1. Mead N, Bower P. Patient-centredness: A conceptual framework and review of the
31 empirical literature. *Soc Sci Med* 2000;51:1087-1110.
32
33 2. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centredness care:
34 A review for rehabilitative audiologists. *Int J Audiol* 2014;53:S60-67.
35
36 3. Michie S, Miles J, Weinman J. Patient-centredness in illness: What is it and does it
37 matter? *Patient Educ Couns* 2003;51:197-206.
38
39 4. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice
40 orientations of physicians and patients: The effect of doctor-patient congruence on
41 satisfaction. *Patient Educ Couns* 2000;39:49-59.
42
43 5. Chan CMH, Azman WA. Attitudes and role orientation of doctor-patient fit and
44 patient satisfaction in cancer care. *Singapore Med J* 2012;53(1):52-56.
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

- 1
2
3
4 6. Hogden A, Greenfield D, Nugus P, Kiernan MC. Engaging in patient decision-making
5
6 in multidisciplinary care for amyotrophic lateral sclerosis: The views of health
7
8 professionals. *Patient Prefer Adher* 2012;6:691-701.
9
- 10
11 7. Umar N, Schollgen I, Terris DD. It is not always about gains: utilities and disutilities
12
13 associated with treatment features in patients with moderate-to-severe psoriasis.
14
15 *Patient Prefer Adher* 2012;6:187-184.
16
- 17
18 8. Levinson W, Roter D, Mullooly J, Frankel R. Physician-patient communication: The
19
20 relationship with malpractice claims among primary care physicians and surgeons. *J*
21
22 *Am Med Assoc* 1997;277:553-559.
23
- 24
25 9. Shaw WS, Woiszwillo MJ, Krupat E. Further validation of the Patient-Practitioner
26
27 Orientation Scale (PPOS) from recorded visits for back pain. *Patient Educ Couns*
28
29 2012;89:288-291.
30
- 31
32 10. Sweetow RW, Davis A, Hickson L. Paradigm shift in audiology education. *Audiology*
33
34 *Today* 2010;Sept/Oct:32-35.
35
- 36
37 11. Hickson L. Defining a paradigm shift. *Sem Hear* 2012;33:3-8.
38
- 39
40 12. Grenness C, Hickson L, Laplante-Lévesque A, Davidson B. Patient-centred
41
42 audiological rehabilitation: Perspectives of older adults who own hearing aids. *Int J*
43
44 *Audiol* 2014;53:S68-75.
45
- 46
47 13. Laplante-Lévesque A, Hickson L, Grenness C. An Australian survey of audiologists'
48
49 preferences for patient-centredness. *Int J Audiol* 2014;53:S76-82.
50
- 51
52 14. Laplante-Lévesque A, Hickson L, Worrall L. A qualitative study of shared decision
53
54 making in rehabilitative audiology. *J Acad Rehabil Audiol* 2011;43:27-43
55
- 56
57 15. Poost-Foroosh L, Jennings MB, Shaw L, Meston CN, Cheeseman MF. Factors in
58
59 client-clinician interaction that influence hearing aid adoption. *Trends Amplif.* 2011;
60
15(3):127-39

- 1
2
3
4 16. Goulios H, Patuzzi RB. Audiology education and practice from an international
5 perspective. *Int J Audiol* 2008;47:647-664.
6
7
8
9 17. Zhao F, Manchaiah V, St. Claire L, Danermark B, Jones L, Rajalakshmi K, Goodwin
10 R. Exploring the influence of culture on hearing help-seeking and hearing aid uptake:
11 A discussion paper. *Int J Audiol* Submitted.
12
13
14 18. Saha S, Beach MC, Cooper LA. Patient centredness, cultural competency and
15 healthcare quality. *J Natl Med Assoc* 2008;100(11):1275-1285.
16
17
18 19. Krupat E, Putnam SM, Yeager CM. The fit between doctors and patient: Can it be
19 measured? *J Gen Intern Med* 1996;11:134.
20
21
22 20. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of
23 cross-cultural adaptation of self-report measures. *Spine* 2000;25(24):3186-3191.
24
25
26 21. Goulios H, Patuzzi RB. Audiology education and practice from an
27 international perspective *Int J of Audiol* 2008;47:647-664
28
29
30
31
32 22. Tsimtsiou Z, Benos A, Garyfallos AA, Hatzichristou D. Predictors of physicians'
33 attitudes toward sharing information with patients and addressing psychosocial needs:
34 A cross-sectional study in Greece. *Health Commun* 2012;27:257-263.
35
36
37 23. Cooper LA, Roter D, Johnson RL, Ford DE, Steinwachs DM, et al. Patient-centred
38 communication, ratings of care, and concordance of patient and physician race. *Ann*
39 *Intern Med* 2003;139:907-915.
40
41
42 24. Al-Bawardy R, Blatt B, Al-Shohaib S, Simmens SJ. Cross-cultural comparison of the
43 patient-centredness of the hidden curriculum between a Saudi Arabia and 9 US
44 medical schools. *Med Educ Online* 2009;14:19. doi: [10.3885/meo.2009.T0000144](https://doi.org/10.3885/meo.2009.T0000144)
45
46
47 25. Hofstede Centre. National Cultural Dimensions. Available from: [http://geert-](http://geert-hofstede.com/dimensions.html)
48 [hofstede.com/dimensions.html](http://geert-hofstede.com/dimensions.html) (accessed on April 24, 2014).
49
50
51
52
53
54
55
56
57
58
59
60

- 1
2
3
4 26. Epner DE, Baile WF. Patient-centred care: the key to cultural competence. *Ann Oncol*
5
6 2012;23(S3):33-42.
7
8
9 27. Kaplan RM, Gandek B, Greenfield S, Rogers W, Ware J. Patient and visit
10 characteristics related to physicians participatory style: Results from medical outcome
11 study. *Med Care* 1995;33:1176-1183.
12
13
14 28. Roter D, Hall J. *Doctors talking with patients, Patients talking with doctors*.
15 Westport: Auburn House, 2006.
16
17
18 29. DiMatteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical
19 treatment outcomes: A meta-analysis. *Med Care* 2002;40:794-811.
20
21
22
23 30. Swenson SL, Buell S, Zettler P, White M, Ruston DC. et al. Patient-centered
24 communication: Do patients really prefer it? *J Gen Intern Med* 2004;19:1069-1080.
25
26
27
28 31. Lewin S, Skea ZC, Entwistle VA, Zwarenstein M, Dick J. Interventions for providers
29 to promote a patient-centred approach in clinical consultations. *Cochrane Database*
30
31
32
33
34
35 32. Campinha-Bacote J. The process of cultural competence in the delivery of healthcare
36 services: A model of care. *J Transcult Nurs* 2002;13(3):181-184.
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Tables

Table 1: Demographic information

	All participants (n = 191)	Portugal (n = 55)	India (n = 78)	Iran (n = 58)
Age in years (Mean±SD)	30.9±8.4	31.0±8.4	29.6±8.6	32.5±8.0
Gender (%)				
▪ Male	37	20	55	30
▪ Female	63	80	45	70
Work set-up (%)				
▪ Clinic public	35	23	39	41
▪ Clinic private	50	51	61	33
▪ Clinic both	12	15	0	26
▪ Education	1	2	0	0
▪ Not known	2	9	0	0
Education (%)				
▪ Bachelors	47	72	18	60
▪ Masters	48	22	74	40
▪ Doctorate	5	6	8	0
Work experience in years (Mean±SD)	7.2±8.1	7.8±8.2	6.1±8.8	8.1±6.5

Table 2: Modified patient practitioner orientation scale (PPOS): Mean scores and standard deviation

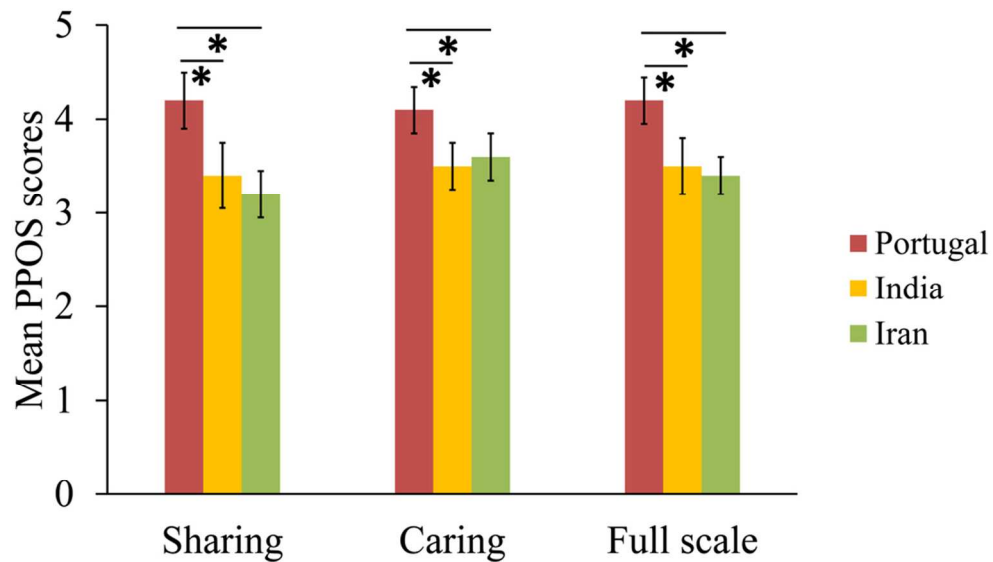
	All participants (n = 191)	Portugal (n = 55)	India (n = 78)	Iran (n = 58)
PPOS Items (Mean±SD)				
1. The audiologist is the one who should decide what gets talked about during an appointment.	2.4±1.1	2.4±1.2	2.3±1.2	2.5±1.2
2. Although health care is less personal these days, this is a small price to pay for audiological advances.	3.0±1.4	4.3±1.2	2.7±1.2	2.1±1.0
3. The most important part of the standard audiological appointment is the hearing test.	2.7±1.4	3.4±1.2	2.5±1.5	2.3±1.1
4. It is often best for clients if they do not have the full explanation of their audiological condition.	4.6±1.3	5.0±1.0	4.5±1.5	4.2±1.3
5. Clients should rely on their audiologists' knowledge and not try to find out about their conditions on their own.	3.2±1.7	4.2±1.4	3.4±1.6	2.0±1.3
6. When audiologists ask a lot of questions about a client's background, they are prying too much into personal matters.	4.4±1.3	5.0±1.0	4.0±1.3	4.2±1.4
7. If audiologists are truly good at diagnosis and treatment, the way they relate to clients is not that important.	4.8±1.2	5.5±0.7	4.4±1.3	4.6±1.2
8. Many clients continue asking questions even though they are not learning anything new.	3.2±1.2	3.4±1.2	3.2±1.2	3.0±1.2
9. Clients should be treated as if they were partners with the audiologist, equal in power and status.*	4.1±1.6	4.7±1.6	3.7±1.5	4.0±1.5
10. Clients generally want reassurance rather than information about their audiological condition.	2.8±1.1	3.3±1.0	2.7±1.1	2.5±1.1
11. If an audiologist's primary tools are being open and warm, the audiologist will not have a lot of success.	4.3±1.4	4.6±1.1	3.8±1.4	4.6±1.3

12. When clients disagree with their audiologist, this is a sign that the audiologist does not have the client's respect and trust.	3.8±1.2	4.6±1.0	3.7±1.1	3.1±1.2
13. A management plan cannot succeed if it is in conflict with a client's lifestyle or values.*	4.7±1.1	4.7±1.1	4.6±1.0	4.7±1.2
14. Most clients want to get in and out of the audiologist's office as quickly as possible.	3.5±1.4	4.4±1.2	3.3±1.2	2.9±1.3
15. The client must always be aware that the audiologist is in charge.	2.6±1.3	2.7±1.2	2.4±1.1	2.9±1.5
16. It is not that important to know a client's culture and background in order to treat the client's audiological condition.	4.6±1.3	5.3±0.9	4.3±1.4	4.6±1.2
17. Humour is a major ingredient in the audiologist's management of the client.*	4.1±1.3	4.8±1.0	3.8±1.3	3.8±1.4
18. When clients look up audiological information on their own, this usually confuses more than it helps.	2.9±1.3	2.6±1.0	2.8±1.4	3.4±1.3
PPOS Scales (Mean±SD)				
▪ Full scale	3.6±0.6	4.2±0.5	3.5±0.6	3.4±0.4
▪ Sharing subscale	3.6±0.7	4.2±0.6	3.4±0.7	3.2±0.5
▪ Caring subscale	3.7±0.6	4.1±0.5	3.5±0.5	3.6±0.5

Note: Score of 1 (strongly agree) = most clinician-centred; Score of 6 (strongly disagree) = most patient-centred. Items 9, 13 and 17 (*) are reversely worded items which were reverse scored.

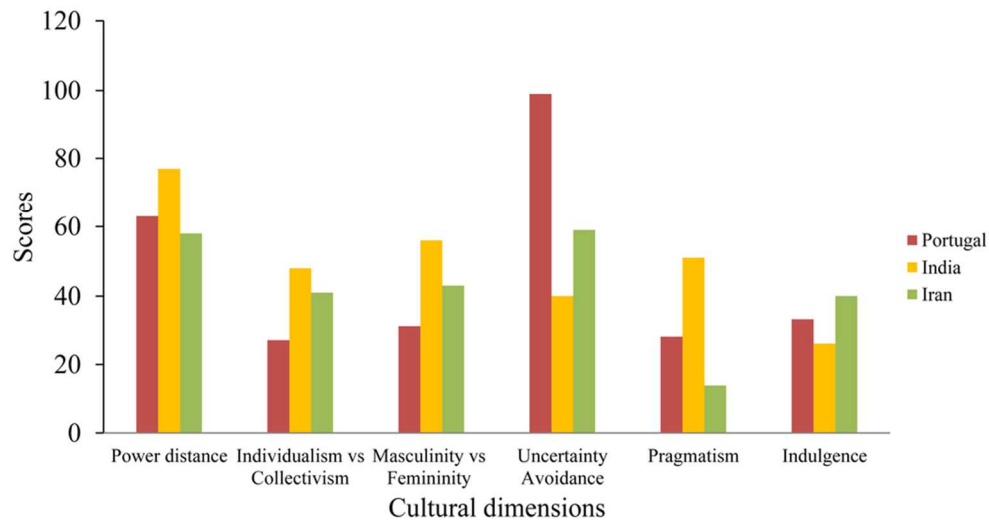
Table 3: Differences in audiologists' preferences for patient-centredness between countries

	Degree of freedom	F-test	P
Sharing	2	39.76	< 0.001
Caring	2	24.61	< 0.001
Full scale	2	42.49	< 0.001



Bar Graphs showing the mean total PPOS Score ('Full Scale'), and the mean PPOS Score for the 'Sharing' and 'Caring' Subscales for Audiologists from Portugal, India and Iran. (*) indicates a significant difference (P<0.01)

92x52mm (300 x 300 DPI)



Bar graph showing Hofstede's cultural dimension values for Portugal, India and Iran. A high score power distance expresses that the less powerful members of a society accept and expect that power is distributed unequally. A high score on Individualism vs Collectivism can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. A high score on 'Masculinity vs Femininity' suggests a preference in society for achievement, heroism, assertiveness and material rewards for success as opposed to cooperation, modesty, caring for the weak and quality of life. A high score on 'Uncertainty Avoidance' suggests members of a society feel uncomfortable with uncertainty and ambiguity. A high score on 'Pragmatism' suggests the society encourages thrift and efforts in modern education as a way to prepare for the future, as opposed to relying on time-honoured traditions. A high score on 'Indulgence' suggests the society follows gratification of basic and natural human drives related to enjoying life and having fun, as opposed to restrain in such activities based on social norms.

90x47mm (300 x 300 DPI)

STROBE 2007 (v4) checklist of items to be included in reports of observational studies in epidemiology*
Checklist for cohort, case-control, and cross-sectional studies (combined)

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2 & 3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4 – 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7 – 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7 - 8
Bias	9	Describe any efforts to address potential sources of bias	7 & 15
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	NA
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	9
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9 & 21
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	9 - 11
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9 - 11
		(b) Report category boundaries when continuous variables were categorized	9 - 11
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	9 - 11
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9 - 11
Discussion			
Key results	18	Summarise key results with reference to study objectives	11 - 13
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	15
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	13 - 15
Generalisability	21	Discuss the generalisability (external validity) of the study results	13 - 15
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	16

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.