

Research Article



The Role of Training in Changing the Attitude of Audiologists in Iran Towards Using Cognitive-Behavioral Therapy for Tinnitus Management

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Highlights

- Adequate training can increase the use of EBP-based treatments
- Clinical experience and age of audiologists are related to their attitude

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ABSTRACT

Background and Aim: Evidence-Based Practice (EBP) is recommended by specialists for curing the patients more than other conventional treatments. In tinnitus management, Cognitive-Behavioral Therapy (CBT) is the only EBP-based method. Different factors, such as training, can affect the therapists' attitudes towards the use of these treatments. This study aimed to investigate the effect of a training program in CBT on Iranian audiologists' attitudes towards using CBT for tinnitus management.

Methods: This descriptive-analytical study was conducted on 88 audiologists (including 65 females) with a mean age of 33 ± 9.54 years, who were randomly divided into two groups of intervention (receiving CBT training) and control (no training). The data were collected by a researcher-made demographic/clinical questionnaire and the Persian version of the Evidence-Based Practice Attitude Scale-35 (EBPAS-P35), which was completed before and after training.

Results: Comparison of the total score of EBPAS-P35 showed a significant difference in the intervention groups before and after training ($p < 0.001$). In addition, all EBPAS-P35 subscales scores were significantly different before and after training in the intervention group ($p < 0.001$). A positive significant correlation was observed between the total score of the EBPAS-P35 and two factors of age ($r = 0.38$, $p = 0.009$) and clinical experience ($r = 0.34$, $p = 0.009$).

Conclusion: Training in CBT can improve the attitude of audiologists in Iran towards using CBT for tinnitus management in patients. The age and clinical experience can affect the attitude of audiologists toward using CBT.

Keywords: Evidence-based practice; tinnitus; coping techniques; cognitive-behavioral therapy



Introduction

The Evidence-Based Practice (EBP) refers to using the strongest and most current evidence to make health care decisions. This approach helps understand the mechanisms and pathophysiology of disorders. The attitude of therapists towards new treatments is a reason for trying/not trying a new clinical practice [1-2]. It is related to two situational factors, the organization where a therapist works and individual differences such as experience and training. Studies have proven that Dissemination and Implementation (DI) of EBP depends on therapist training. Receiving training is positively associated with using evidence-based treatments and utilization of innovative methods for treatment [3]. There is a relationship between the knowledge of therapists and the use of EBP and a positive association between the knowledge of therapists and the satisfaction of patients with the quality of received treatment [4]. Rogers et al. proposed a theory in which certain levels were considered for the DI of EBP. This theory was named the Knowledge-Attitude-Practice (K-A-P) theory. This theory states that sufficient knowledge, positive attitudes, and healthy behaviors can predict the use of EBPs [5].

Tinnitus is defined as a sound perception without any external source. Tinnitus has affected many people worldwide in different ways. The prevalence of tinnitus in different studies ranges from 4.4 to 15.1% [6, 7]. Tinnitus can be categorized in different ways. For example, tinnitus can be classified according to its type (objective or subjective) or pathology (reversible, due to exposure to high-intensity sounds, fever, use of aspirin, etc. or irreversible, due to the use of ototoxic drugs, acetylsalicylate, acoustic tumor, etc.) [8, 9]. Common reactions in patients with tinnitus include depression, despair, anxiety, stress, decreased quality of life, and in more severe cases, self-harm and suicide [10]. Cognitive-Behavioral Therapy (CBT) is one of the EBP-based methods for patients with tinnitus. This management method is a type of psychological treatment. It helps patients to reconstruct their thoughts and cognition and changes dysfunctional beliefs and behaviors. This method consists of psychological training, mindfulness, and attention control techniques [11, 12]. Studies have

proven that CBT can effectively reduce tinnitus severity and tinnitus-related reactions and increase quality of life [13, 14].

Training on special treatment methods can change the attitude towards EBPs. For audiologists, receiving training in CBT can be one of the factors that can change their attitudes. Other factors can also affect their attitudes. The main question is whether training can lead to a significant change in the attitude of Iranian audiologists towards EBPs such as CBT. The secondary question is, what are other factors that can be effective in changing their attitude? Therefore, this study aimed to investigate the effect of training on the attitude of audiologists towards CBT in Iran and identify other factors (such as education level and age) that can affect their attitudes.

Methods

Participants

The study population consists of audiologists from different provinces of Iran. In 2023, the number of audiologists in Iran announced by the Iranian Society of Audiology was 1173. Of these, 88 were selected (including 65 females) and randomly divided into two groups of intervention (n=44; mean age: 36±9.67 years) and control (n=44; mean age: 31±9.42). The study process was explained to all audiologists, and informed consent was obtained from them.

Instruments

For collecting information related to tinnitus management, a researcher-made questionnaire was used. This questionnaire surveys personal and occupational information, information related to providing tinnitus services to patients, information about tinnitus management training, and information related to tinnitus management methods. These data were collected once at the beginning of the study. Also, audiologists were asked to state the reasons for not using evidence-based CBT for tinnitus management.

The Persian version of the Evidence-Based Practice Attitude Scale (EBPAS) was used to survey the audiologists' attitudes [15]. This scale has 12 subscales

and 35 items. The subscales include: *Requirements* for using EBP, *appeal* to evidence-based information, *openness* to EBPs as new interventions, *divergence* between EBP and therapists' routine treatments, *limitations* of using EBP, *fit* of EBP to patients' needs, *monitoring* the use of EBP, *balance* between being science or art of EBP, *burden* of EBP on therapists, *job security* for using EBP, *organizational support* for using EBP, and *giving feedback* of using EBP to therapists. The questions in this scale are close-ended. The scoring is based on a five-point Likert scale from 0 (Not at all) to 4 (to a very great extent). The scoring for subscales Divergence, Limitations, Monitoring, Balance, and Burden are reversed.

The audiologists answered the questions online in the *Porline* online system. In the initial stage, information using two questionnaires were collected from all audiologists in the two groups. After that, education in the field of CBT was provided in the form of a webinar to the audiologists in the intervention group at two five-hour sessions. The contents of the educational program included: an introduction to CBT, components of CBT, how to provide CBT, psychological evaluations of tinnitus, and a brief description of sound therapy and retraining methods. After training, all audiologists were asked to complete the EBPAS-P35 again, and the collected data were finally analyzed.

Statistical analysis

The collected data was analyzed in SPSS v.17 software. The normal distribution of the data was examined with the Shapiro-Wilk test. Wilcoxon signed-rank test was used to check the change of means in the two study groups (before and after training for the intervention group, and first and second times for the control group). The Mann-Whitney U test used to compare the mean scores between the two groups. The Spearman correlation test, Mann-Whitney U test, and Kruskal-Wallis test were used to examine the correlation between components of the chronic tinnitus management questionnaire and the amount of change in the total score of EBPAS-P35. A significance level of 0.05 was considered for all analyses.

Results

The distribution the data was not normal based in the

Shapiro-Wilk test results. For the total score of EBPAS, there was a difference between pretest and posttest results in both groups; but, the change in the intervention group was significant ($p < 0.001$) (Table 1). The difference in EBPAS score for the intervention group in all subscales was significant before and after training; therefore, training had a significant effect ($p < 0.001$). Demographic characteristics of participants are presented in Tables 2 (age and clinical experience) and Table 3 (personal and clinical characteristics).

In the control group, the difference in the EBPAS score was significant for five subscales (requirements, openness, fit, job security, organizational support) between the pretest and posttest phases, but according to the type of questions for these subscales, the changes cannot be caused by training (Table 1). To assess the difference of the total score of EBPAS with the demographic/clinical factors, the Mann-Whitney U and Kruskal-Wallis test were used and for assess the relationship (age and clinical experience versus total score of EBPAS), the Spearman correlation coefficient was used. Based on the results, only age ($r = 0.38$, $p = 0.009$) and clinical experience ($r = 0.34$, $p = 0.022$) were shown as effective factors related to the EBPAS score.

Discussion

This study was conducted to determine the effect of CBT training on the attitude of audiologists towards using CBT in tinnitus patients. The results showed that the training caused a significant change in the EBPAS score, and caused positive attitude towards the CBT. This is consistent with the results of other studies. Nelson and Steel concluded that the quality and quantity of training and the attitude of therapists are essential factors for predicting the use of EBP by them [16]. Bearman et al., concluded that adequate training for students before entering the internship can lead to more use of EBPs [17]. Leathers et al. stated that providing training for therapists can lead to the use of more EBPs in clinical practice [18].

Seventy percent of the audiologists in our study stated that insufficient training was the main reason for not using CBT. Consistent with this result, James et al. concluded that the therapists had little familiarity with EBPs, but they would use these practices if training had been provided [19]. Tomotaki et al. showed that the low

Table 1. Mean difference and p (before and after providing the training for case group, first and second time for control group) and mean comparison between case and control group

Evidence-based practice attitude scale score	Case group Vs. control group	Control group		Case group	
	p	Mean scores difference (first and second time)	p	Mean scores difference (before and after training)	p
Total score	≤0.001	9.57	≤0.001	34.7	≤0.001
Subscales score					
Requirements	0.277	1.52	≤0.001	2.03	≤0.001
Appeal	0.004	0.55	0.233	1.72	≤0.001
Openness	0.389	3.75	≤0.001	3.02	≤0.001
Divergence	≤0.001	0.12	0.496	3.30	≤0.001
Limitations	≤0.001	0.14	0.458	3.22	≤0.001
Fit	≤0.001	0.52	0.010	2.05	≤0.001
Monitoring	≤0.001	0.03	0.739	3.28	≤0.001
Balance	≤0.001	0.25	0.161	4	≤0.001
Burden	≤0.001	0.13	0.157	2.07	≤0.001
Job security	≤0.001	0.57	≤0.001	3.41	≤0.001
Organizational support	≤0.001	1.46	≤0.001	2.86	≤0.001
Feedback	≤0.001	0.31	0.267	2.66	≤0.001

Table 2. Age and clinical experience of the participants

Variables	Control group		Case group	
	Mean	SD	Mean	SD
Age	31	9.42	36	9.67
Clinical experience	8	8.65	12	8.82

knowledge of nurses is the most important factor for not using EBPs [20]. Our study also showed that audiologists' age and clinical experience were significantly related to the EBPAS score. Consistent with this result, Aaron reported that the clinical experience of psychologists is an important factor for using EBPs [1]. Sadeghi-Bazargani et al. concluded that the insufficient skill of specialists (lower clinical experience) was a barrier to not using EBP, and Zwolsman et al. showed that the individual characteristics of therapists, such as clinical experience, can be factors of non-using the EBPs [21, 22]. In Nassbaumer-Streit et al.'s study, it was concluded that psychologists' age and clinical experience had a

negative correlation with their attitude towards EBP, such that the therapists with higher age and clinical experience had a more negative attitude towards EBP [23]. This result is not in agreement with our results and the results of previous studies. In their study, the score of one subscale was used to examine the correlation, while in the current study, the total score of EBPAS was used to examine the correlation of age and clinical experience with the attitude of audiologists. Also, a different population was used in their study. These differences may be the reasons for the discrepancy.

Although in various studies such as those conducted

Table 3. Personal and clinical characteristics of the participants

		Case group		Control group	
		N	Percent (%)	N	Percent (%)
Gender	Male	11	25.0	12	27.3
	Female	33	75.0	32	72.7
Educational level	B.Sc. of audiology	33	75.0	35	79.5
	M.Sc. of audiology	9	20.5	7	15.9
	Ph.D. of audiology	2	4.5	2	4.5
Clinical activity type	Private	22	50.0	25	56.8
	Organizational	7	15.9	7	15.9
	Both of them	15	34.1	12	4.5
Work in the tinnitus field	Yes	21	47.7	13	29.5
	No	23	52.3	31	70.5
The requirement to provide tinnitus service in the clinic	Yes	42	95.5	40	90.9
	No	2	4.5	4	9.1
Interested in working in the tinnitus field	Yes	40	90.9	36	81.8
	No	4	9.1	8	18.2
Familiarity with tinnitus management methods	Yes	25	56.8	17	38.6
	No	19	43.2	27	61.4
Amount of received education	Low	19	43.2	5	56.8
	Medium	23	52.3	18	40.9
	High	2	4.5	1	2.3
Interested in receiving education	Yes	43	97.7	39	88.6
	No	1	2.3	5	11.4
Preferred training method	Online training	20	45.5	18	40.9
	Offline training	15	34.1	20	45.5
	Personal study (book, etc.)	8	18.2	5	11.4
	others	1	2.3	1	2.3
Kind of supervision	Straight supervision in the clinic	4	9.1	12	27.3
	Recording voice of treatment session	4	9.1	4	9.1
	Recording of the treatment session	5	11.4	7	15.9
	Answer to questions	31	70.5	21	47.8
Using modern treatment	Yes	43	97.7	42	95.5
	No	1	2.3	2	4.5
Having enough time for presentation CBT	Yes	29	65.9	27	61.4
	No	15	34.1	17	38.6

by Ogborne et al. [24], Aaron and Sawitzky [25], and Bearman et al. [17], a higher educational level led to a more positive attitude in therapists, audiologists' educational level in the present study was not reported a factor associated with the EBPAS score. This discrepancy can be due to different study samples and population. Lack of time was proposed as a barrier to providing EBP-based treatments in studies by Walrath et al. [26], Scurlock-Evanz et al. [27], Khammarnia et al. [28], Jordan et al. [29], Johnston et al. [30], Azmoudeh et al. [31], and Alatawi et al. [32], but in the present study, 60% of audiologists stated that they had enough time to provide CBT. Compared to therapists in the field of psychology, midwifery, nursing, and physical therapy [26-32], audiologists seem to have enough time to provide EBP-based treatments to patients. Finally, this study showed that low familiarity with and knowledge of tinnitus rehabilitation methods and the small service fee needed for CBT were the reasons for not using EBP-based methods by audiologists which not investigated in previous studies.

Conclusion

Training in Cognitive-Behavioral Therapy (CBT) can improve the attitude of audiologists towards using CBT for tinnitus management in patients. The clinical experience and age of audiologists, are related to their attitudes towards using CBT. However, more research is needed in this filed.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1400.1084).

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Authors' contributions

KPY: Data collection and interpretation, writing the manuscript; MS: Study design and supervision on research; FJ: Study design and supervision on research;

SHS: Data interpretation and analyzing.

Conflict of interest

The authors declare that there is no conflict of interest.

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