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OPEN PEER REVIEW

Barriers of Implementing Evidence-based Practice Perceived by Iranian Speech and Language Pathologists: A Qualitative Study

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

4 comments · 17 Jul 2021 – 26 Jul 2021

Referee 1 Reviewer

MAJOR REVISION 17 Jul 2021

Dear Author/s
Thank you very much for submitting your manuscript entitled "Barriers to implement evidence-based practice perceived by speech and language pathologists: A qualitative study". I found the subject and the procedure quite interesting; however, you should address a few issues before I can make a concrete decision. I do strongly advise you to ask a colleague to read your paper because of the redundancy and repetition that have degraded the quality of the manuscript. Then address the following:
1- Add 'Iranian' to your title.
2- In the abstract: your conclusion does not interpret your results.
3- Keywords: instead of 'qualitative study', use 'qualitative research' (https://www.ncbi.nlm.nih.gov/mesh/?term=Qualitative+study). 'barriers' does not stand alone; find a better replacement (https://www.ncbi.nlm.nih.gov/mesh/?term=Barriers).
4- Introduction:
There are a few grammatical errors that need to be resolved.
Typos should be removed.
Add references after you finish the sentence. Provide a reference for this sentence: "speech and language pathology is a profession that, depending on the language and culture, differs from one country to another clinical population and service provision settings may vary".
5- Material & Methods:
Be consistent about verb tense.
These sentences are redundant: "This sampling method yields a wide spectrum of experiences and increases validity of the study. In the present study, variation in samples was related to the practice setting, educational degrees, practice field, and the number of years of practice. Therefore, to seek a range of views on the research issues, we tried to choose SLPs with different practice setting, educational degrees, practice field, and practice experiences."
Line 104: replace 'coauthors' with their specialty, for example, speech and language pathologists.
Lines 97-109 are redundant; merge them.
Line 110: "All the researchers reviewed"—did you mean "the research team"?
It is not usual to mention a person's academic rank: "a professor qualified in the field of qualitative studie".
Replace lines 137-142 with your ethics code and its link.
Line 144: report ages and durations in years and months; it is quite difficult to understand '32.4 years of age and 9.85 years'.
In table 2, a few phrases need better replacements: 'Supervision weakness' & 'High work loading' & 'Society culture'.
Lines 153-156; 224-227; 278-283 are redundant; please remove them.
Line 265: 'Another participant who was a faculty member of the university'—since you have introduced your participants in table 1, I consider this sentence redundant; just say P4 said "…" .
6- Discussion:
While you have referred to many different majors with similar issues, I cannot see any references. Please refer to proper sources.
Lines 389-394 are redundant; leave them out.
I could see a 'rush and hurry' in this section. Please revise the whole section.
7- Conclusion: needs a thorough revision to follow your results.

8- Add a heading, 'limitation', and discuss limitations that affected the quality of your study. What you discussed mainly concerned difficulties in running the study or writing a paper.
9- Lines 409-413 need revisions.
10- There was no reference list at the end of your manuscript.

Referee 2 Reviewer

MAJOR REVISION 20 Jul 2021

Dear authors

This manuscript reports a qualitative study exploring the barriers to implementing EBP among 14 Iranian SLPs. Data analysis yielded three themes, including individual factors, organizational (workplace) factors, and extra-organizational factors as perceived barriers to implementing EBP among Iranian SLPs.

This is a fine study. But it needs some corrections, all of which have been inserted in the Word file of the manuscript for the author. Please answer each comment separately and highlight corrections in the text.
best regards

Associate Editor

MAJOR REVISION 25 Jul 2021

Dear author/s
Thank you so much for submitting your manuscript entitled "Barriers to implement evidence-based practice perceived by speech and language pathologists: A qualitative study" to the MEJRH. Our reviewers and I read the manuscript carefully, and I am in complete agreement with the reviewers' comments.
While the whole manuscript needs major revisions, one of our reviewers raised concerns regarding the novelty of your work because of a published paper. I do want to give you another chance to revise your manuscript and clear up the issues regarding the novelty of your paper.
Looking forward to reviewing the revised paper

Editor-in-Chief

MAJOR REVISION 26 Jul 2021

Dear Authors
According to the reviewers' and associate editor's comments, your article needs major revision. Please respond to the reviewers' comments accurately.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to Reviewers:
We would like to thank the reviewers for their comments on our manuscript. It is absolutely clear that the reviewers have spent a lot of time reading and commenting on our work and we are really grateful for that. We have done our best to address all the comments. We have highlighted changes in the manuscript with Yellow Highlights and some responses to reviewers presented below with red font.

Comments from the Editors and Reviewers:
Reviewer 1:
Dear Author/s
Thank you very much for submitting your manuscript entitled as "Barriers to implement evidence-based practice perceived by speech and language pathologists: A qualitative study". I found the subject and the procedure quite interesting however you should address few issues before I can make a concrete decision.
I do strongly advise you to ask a colleague to read your paper due to lots of redundancy and repetitions that degraded the quality of the manuscript. Then check out these:

Response: thank you so much for valuable comments. We performed all of them.

1- Add 'Iranian' to your title. Response: we performed it.
2- In abstract: your conclusion does not interpret your results. Response: we revised it.
3- Key words: instead of 'qualitative study' use 'qualitative research' Response: we performed it.
(https://www.ncbi.nlm.nih.gov/mesh/?term=Qualitative+study), 'barriers' does not stand alone, find a better replacement (https://www.ncbi.nlm.nih.gov/mesh/?term=Barriers). Response: We don't find any replacement for 'barrier'.

4- Introduction:
few grammatical errors that need to be resolved,
typos should be removed,
add references after you finished the sentence, provide a reference for this sentence "speech and language pathology is a profession that, depending on the language and culture, differs from one country to another clinical population and service provision settings may vary"
Response: we performed it.

Response: we performed it.
5- Material & Methods:
be consistent about verb tense, Response: we performed it.
these sentences are redundant "This sampling method yields a wide spectrum of experiences and increases validity of the study. In the present study, variation in samples was related to the practice setting, educational degrees, practice field, and the number of years of practice. Therefore, to seek a range of views on the research issues, we tried to choose SLPs with different practice setting, educational degrees, practice field, and practice experiences."
Response: we performed it.
line 104: replace 'coauthors' with their specialty, for example: speech and language pathologists

Response: we performed it.
Lines 97-109 are redundant, merge them. Response: we merged some sentences.
Line 110: "All the researchers reviewed" did you mean "the research team"? Response: we performed it.
it is not usual to mention a person's academic grade "a professor qualified in the field of qualitative studie"
replace lines 137-142 with your ethics code and its link Response: we performed it.
Line 144, report years as years and months, it is quite difficult to understand '32.4 years of age and 9.85 years'. Response: the months of years are not important for this study and we can just report the mean of years.
in table 2, few phrases need better replacement: 'Supervision weakness' & 'High work loading' & 'Society culture'
Lines 153-156; 224-227; 278-283 are redundant, please remove them. Response: These sections are very important. This type of results writing is common in qualitative studies.
Line 265: 'Another participant who was a faculty member of the university' since you have introduced your participants in table 1, I considered this sentence as redundancy, just say P4 said "…" Response: we performed it.
Lines 269-277 looked to me more breaching the ethics! Not financial issues. Please reconsider this. Response: our aim to determine barriers to EBP, it can be also considered an ethics problem.
6- Discussion:
while you have referred to many different majors with similar issues, I cannot see any references. Please refer to proper resources. Response: we performed it.
Lines 389-394 are redundant, leave them out. Response: we performed it.
I could see a 'rush and hurry' in this section. Please revise the whole section. Response: we revised it.
7- Conclusion: needs an absolutely fine revision to follow your results Response: we revised it.
8- Define a heading as 'limitation' and talk about limitations that affected the quality of your study. What you talked about were mainly difficulties to run the study or writing a paper
9- Lines 409-413 need revisions Response: we revised it.
10- There was no reference list at the end of your manuscript. Response: the references are present in the manuscript file.

Reviewer 2:
Dear authors

This manuscript reports a qualitative study exploring the barriers for implementing EBP among 14 Iranian SLPs. Data analysis yielded three themes including individual factors, organizational (work place) factors, and extra organizational factors as perceived barriers for implementing EBP among Iranian SLPs.

This is a fine study. But it needs some corrections, all of which have been inserted in the Word file of the manuscript for the author. Please answer each comment separately and highlighted

corrections in the text.
Best regards

Response: Thank you for valuable comments. We investigated all comments in the word file and performed them. The word file presented in the following after the reviewer 3 comments.

Reviewer 3:
Thank you to let me read this study. It is an interesting subject but I did not find it up to date and comprehensive one because:
In an article published by Tohidast et al. as "Development and Psychometric Evaluation of Speech and Language Pathology Evidence-Based Practice Questionnaire (SLP-EBPQ)", they have made a validated questionnaire based on both a qualitative study and literature review which is more comprehensive than the present study. They have reported four factors for barriers and mention that "the items for evaluation of the barriers have never been observed in other questionnaires and this comprehensiveness could be the strength of the SLP-EBPQ". So when such a questionnaire is made, it seems more worthy to use it to evaluate the barriers in a vast population of Iranian SLPs because challenges of just 14 SLP`s to use EBP cannot picture the barriers of majority. *Response: Thank you for your attention to this issue. Quantitative studies that use questionnaires, although comprehensive, examine the issue superficially. The present study was performed qualitatively in order to examine the barriers in more depth and more accurately. This is the main feature of the qualitative studies that explain the issues with a small number of samples but with great depth.*
On the other hand during the past two years as a result of COVID-19 a great changing has occurred in learning process and many different virtual training courses have offered and are available which can affect on the result of the present study. *Response: the present study conducted before COVID-19 pandemic. It can be a good suggestion to perform some studies similar to the present study during COVID-19 pandemic. However, it seems that a pandemic cannot be a barrier to the publication of the results of studies conducted before the pandemic.*
Best,

Title: Barriers to implement evidence-based practice perceived by speech and language pathologists: A qualitative study

Abstract

Purpose: Identifying and removing the barriers faced by speech and language pathologists (SLPs) for implementing evidence-based practice (EBP) can facilitate the use of EBP among SLPs. As a result, the present study was conducted to explore the barriers for implementing EBP among Iranian SLPs.

Methods: A total of 14 SLPs participated in the current study. A purposive method was used for sampling and semi-structured interviews were conducted for data collection. The interviews continued until data saturation was reached. Data were recorded and transcribed verbatim and qualitative content analysis was used for data analysis.

Results: Data analysis yielded three themes including individual factors, organizational (work place) factors, and extra organizational factors. These three themes included 13 subthemes.

Conclusions: Understanding barriers to implement EBP perceived by SLPs and making an attempt to alleviate them will help SLPs, speech and language pathology educational staff, administrators, and rehabilitation team members to facilitate the implementation of EBP by SLPs.

***Keywords*:** Evidence-based practice; Speech and language pathology; Barriers; Qualitative study

Introduction

Evidence-based practice (EBP) is defined as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients … [and] means integrating individual clinical expertise with the best available external clinical evidence from systematic research” (p. 71) . There is a great interest in the use of EBP in many healthcare professions in recent decades . This increased focus on EBP might have been due to its benefits . Advantages of using EBP by clinicians include improving the quality of clinical services, establishing an appropriate connection between theory and practice, decreasing the differences in service provision, and more accountability on the part of the clinicians toward patients and their families . Providing the best possible healthcare for the patients is the overall goal of the EBP .

Since the advent and expansion of the EBP, Speech and Language Pathologists (SLPs), as well as other health related clinicians, have been encouraged to apply EBP in daily clinical practice . Many measures to advocate the adoption of EBP and its use has been adopted by professionals, administrators, educators, researchers, and well-known associations in the field of the speech and language pathology . For example, the American Speech-Language-Hearing Association (ASHA) provides some resources to facilitate the use of EBP among SLPs . At the moment, using EBP is one of the basic tenets of the speech and language pathology . ASHA puts a strong emphasis on EBP. The SLPs do have the responsibility to use EBP and they must have demonstrated basic knowledge of integrating research principles into evidence-based clinical practice to receive certificate of clinical competence. . In addition, research on EBP is one of the ASHA’s priorities . Other speech-language pathology professional entities have also focused on EBP. For example, expansion and dissemination of information about EBP is also at the forefront of the Academy of Neurologic Communication Disorders and Sciences (ANCDS) and

1 many EBP guidelines are developed and released by this academy . Similar to other international
2 associations related to the field of speech and language pathology, The Royal College of Speech
3 and Language Therapists (RCSLT) focuses on EBP use and developing clinicians' ability to
4 employ EBP. RCSLT has included EBP in its professional standards and guidelines, that it is
5 essential for clinicians to: "establish an evidence-based resource as the basis for provision of
6 clinical care, organization of services and service development" (Royal College of Speech and
7 Language Therapists (RCSLT) . Despite these measures and the emphasis on the importance of
8 EBP, there are some barriers that prevent successful implementation of the EBP . Identifying
9 these barriers will help to further expand the use of EBP among SLPs in the future .

10 To date, some studies have been conducted to identify barriers faced by SLPs when
11 attempting to use EBP and some barriers have been detected, including (1) insufficient
12 knowledge about EBP and improper skills to implement it (locating, appraising the quality,
13 synthesizing, and using findings from evidence (2) insufficient time to apply EBP, (3) lack of
14 evidence related to the client population in speech and language pathology, (4) difficulty in
15 accessing the research evidence, (5) willingness to use traditional approaches, (6) lack of due
16 credit given to EBP by leadership, and (7) organizational culture and climate barriers that do not
17 support implementation of the EBP .

18 All of these studies were conducted using a quantitative method and a questionnaire.
19 However, it seems that a qualitative study can more accurately identify the barriers. Moreover,
20 most of these studies have been conducted in western countries; because, speech and language
21 pathology is a profession that, depending on the language and culture, differs from one country
22 to another clinical population and service provision settings may vary . Thus, Iranian SLPs may
23 face different and unique barriers in implementing EBP. Therefore, the aim of the present study

was to explore the barriers of implementing EBP among Iranian SLPs using a qualitative approach.

Methods

Study design

A qualitative approach with content analysis technique was used in the current study to explore the barriers of implementing EBP among Iranian SLPs. In the qualitative content analysis, the main themes for studies were determined by summarizing, describing, and interpreting the data. Content analysis is used to examine participants' perceptions and experiences about a specific topic .

Sampling and setting

To achieve maximum variation and a heterogeneous sample of SLPs, we used purposive s'ampling. Mack et al., (2005) notes that application of purposive sampling entails categorizing subjects in accordance with ex ante identified criteria based on the research issue. This sampling method yields a wide spectrum of experiences and increases validity of the study. In the present study, variation in samples was related to the practice setting, educational degrees, practice field, and the number of years of practice. Therefore, to seek a range of views on the research issues, we tried to choose SLPs with different practice setting, educational degrees, practice field, and practice experiences. Table 1 presents each participant’s characteristics. A total of 14 interviews were conducted between July 2016 to April 2017 with SLPs coming from three cities (i.e., Tehran, Isfahan, and Karaj) in Iran. Participants were the members of the Iranian Scientific Speech Therapy Association with at least two years of clinical experience.

Data collection

Face-to-face semi-structured interviews were used to identify Iranian SLPs' perceptions of barriers that prevent successful implementation of EBP in clinical practice. The first author performed all the interviews and all authors participated in the data analysis. To collect interviews, firstly we sent an invitation letter containing a brief explanation of the study objectives via e-mail to 30 SLPs. Then, we went to the workplace settings (i.e., clinic, unit, or department) of the SLPs who responded positively to our request for an interview. These interviews continued for approximately 30-70 minutes (Mean=45 min) and were recorded digitally and transcribed verbatim.

Data analysis

Qualitative content analysis with a deductive approach was used for data analysis in five steps in accordance with Graneheim and Lundman . The five steps include (1) Transcribing: verbatim transcription of the content of each interview immediately after recording it, (2) Determining meaning units: reading each interview text several times to get a thorough understanding of its content and extracting meaning units, (3) Abstracting: abstracting of the meaning units and primary codes, (4) Sorting codes: combining and categorizing codes due to their similarities and differences, and (5) Formulating themes: determining the content which is hidden in the data . In the present study, the first interview was transcribed and double checked by coauthors. In the next step, we extracted the meaning units and primary codes and then categorized these extracted codes. After addition of new interviews, this procedure was repeated and we modified the codes and then the categories based on the new data. This procedure was repeated until data saturation

was reached and finally the extracted codes and categories were sorted and themes were formulated.

All the researchers reviewed the transcribe interviews several times and were involved in interpretation of the coding. The first and second authors performed the categorization process. Nevertheless, all the authors revised and approved all stages of the analysis.

Rigor

To evaluate trustworthiness of the data, we used the criteria suggested by Guba and Lincoln . The overall objective of trustworthiness in qualitative studies is equivalent to quantitative criteria of internal validity, external validity, reliability, and objectivity . We used prolonged engagement, development of a coding system, member checking, external audits (external observer), triangulation, and transferability to establish rigor (trustworthiness) in our study. Prolonged engagement involves spending time with the study participants. To achieve prolonged engagement, the first author was involved in the process of interviews and data analysis for a year, because he conducted an interview and then analyzed its data, then the second interview was conducted and its data analysis followed, and next came the third interview and its data analysis, and so on. This procedure helped the first author to gain the SLPs' trust and provided a better understanding of EBP. In the semi-structured interviews, we used questions which were developed in advance. These pre-selected questions were asked in the same order. The SLPs were free to answer or dismiss any of the questions as they wished, but answers had to be restricted to the pre-selected questions, or to new questions which were developed instantly by the interviewer during the interviews (depending on the discussions) although the investigator could ask follow-up probes to obtain additional information. In member check, the transcribed

interviews were sent to the participants to ascertain and correct the data and add possible additional information . So, in the present study, we gave back the transcribed interviews to the SLPs who participated in the study. An external observer was consulted to ensure the dependability of data analysis. As a result, some sections of the transcribed interviews and analyzed data were sent to a professor qualified in the field of qualitative studies and EBP to approve and/or correct the analyses. To provide reliable findings, triangulation was performed using splitting the data into two sets and asking two coauthors analyze each set independently..

Ethical consideration

The participants were informed about the objectives of the study. Participation in the study was voluntary and participants could withdraw at any time during the study. They were assured about anonymity and confidentiality of the data. To ensure confidentiality, each participant was identified with a number, and each interview transcript was coded and stored securely. Finally, consent forms were completed by the SLPs who participated in the study.

Results

A total of 14 SLPs with a mean of 32.4 years of age and 9.85 years of work experience participated in the study with 57.1% of the participants being women and 71.4% post graduates. Table 1 presents more details about participants' demographics.

[Table One about here]

Data analysis yielded three themes stated by the SLPs in relation to the issues that have prevented using EBP in their clinical practice. The emerged themes included individual factors, organizational (work place) factors, and extra organizational factors. These three themes comprised of 13 subthemes (Table 2).

[Table Two about here]

Individual factors

The SLPs believed that some of barriers were related to the SLPs themselves. These barriers included knowledge and skills related to EBP, personal negative attitudes, and personal problems. However, they stated that these barriers varied among different colleagues.

Knowledge and skills related to EBP

The SLPs stated that they should have the appropriate knowledge and skills about EBP to implement it, yet they believed that they did not have enough knowledge and skills in this regard. Lack of proficiency in the English language, which is the main language of the texts and evidences in speech and language pathology, was one of the barriers related to knowledge and skills as stated by one SLP:

> *"Lack of skills in the English language is the greatest obstacle for me to use EBP. It is very difficult for those like me who are incompetent in English. I should always ask colleagues to help me and translate a book or article for me or that I should resort to Google translate to understand the meanings of the English texts."* (P-14)

Some participants believed that they were having difficulty with the understanding of statistical concepts, and this is another barrier to their use of EBP:

> *"The inability to understand statistical concepts is also important. For example, a while ago, I read an article that was about using regression to predict the chronicity of stuttering. Once I read the article, I did not understand what the regression was? If I had a good knowledge and information about statistics, I could better understand the regression."* (P-6)

Insufficient skills to do research and find evidence were other barriers related to the participants' knowledge and skills. One of the SLPs said:

> *"Another thing that comes to my mind is the inability to do research. This can be very disadvantageous for a clinician who has difficulty in this regard. For example, a clinician with a rare client may not get proper information due to inappropriate skill to find related evidence."* (P-11)

Personal negative attitudes

The SLPs believed that they had some attitudes toward clinical practice and their abilities that could prevent them from using EBP in clinical practice. These negative attitudes included feeling scientifically competent, excessive pride, and oversimplification.

Feeling adequate about theoretical knowledge and clinical abilities was one of the barriers associated with the personal negative attitudes of SLPs.

> *"Unfortunately, a major part of concerns is that when I graduated from the university, I am a specialist in the field of speech and language pathology and I feel that my knowledge is sufficient and so it does not need to be updated."* (P-1)

Excessive pride was also an important barrier for moving toward EBP:

> *"In my opinion, excessive pride is another issue that exists. This means that when we get positive outcomes from treating some of our clients, we are prone to excessive pride that these techniques and methods are sufficient and there is no need to learn new ones."* (P-11)

Several SLPs stated that some areas of speech and language pathology are considered too simple by them and their colleagues. One of the participants said:

> *"Unfortunately, we think that evaluating and treating some areas of our discipline is simple and common. For example, the area of the Speech Sound Disorder (SSD), which is considered to be very simple by SLPs, because most of our colleagues believe that the SSD is a very simple area and everyone can do with a limited knowledge."* (P-12)

Personal problems

According to participants, the problems of clinicians of any kind can influence the use of EBP. These problems may include lack of time, financial problems, and other problems of the clinicians in their life personal lives.

About the lack of time, one of the participants argued that: *"one of the problems that I have for using EBP is insufficient time. Of course, I think that this issue is a problem for many of my colleagues, too."* (P-14)

One of the SLPs with high clinical work experience talked about the financial problems of the clinicians:

> *"I think the financial situation of a clinician is very important, because when you want to work on the basis of EBP, you must evaluate the clients, you have to spend time for the searching, and so on. For example, I spent about three hours for reviewing the ratings of my clients in the morning. It took a lot of time for comparison of these ratings. These are time-consuming. A therapist who has financial needs and a great deal of dependency on speech therapy cannot really have time to do this. I think because implementing evidence-based practice is time-consuming, you must have enough income so that you can assign time for it."* (P-5)

Organizational (Workplace) factors

This theme refers to barriers related to organizational factors (the clinicians' workplace) and comprises of five subthemes including lack of academic education about EBP, lack of facilities, supervision weakness, high work loading, and financial issues.

Lack of academic education about EBP

Several participants emphasized that proper education about EBP was not provided for them and they did not receive academic education about EBP at the university.

> *"We did not receive any education about EBP, or that at least in the curriculum we did not have any such education at all. For example, we did not have any training on how to search articles and we should attend some classes outside of the university to learn about searching and finding articles."* (P-14)

Another point reported by some SLPs was related to teachers. One of the participants stated that *"I must have a teacher explain the EBP to me, move me toward EBP. Do teachers give students the basics of reading articles?"* (P-6)

Lack of facilities

Lack of facilities, such as inappropriate clinic space, was another barrier facing SLPs in using EBP. One of the participants working in a private clinic said:

> *"The other problem is that we do not have proper clinical spaces; there are only a few clinicians whose general clinical spaces are commensurate with the client's needs. For example, if I want to work with a child with hearing loss based on the EBP, the space of my clinic should be in line with the conditions stated in the*

evidence. when I want to work with a child with autism, my room should be adapted to the conditions of children with autism." (P-4)

Supervision weakness

Participants mentioned that the weakness of monitoring the performance of clinicians and the lack of pressure to use EBP by regulatory systems could also be a barrier to use EBP. One of the participants who was a faculty member of the university added:

"*Well, supervisory systems in Iran are weak, for instance, Sector for Treatment Affairs at the Ministry of Health and Medical Education, or the medical system let's say, those who should have the main supervisions, are very weak. Now, if a clinician does not work based on the EBP, it's not a good supervisory authority to stop it. You know what I'm saying. There are times when I'm not working on the basics of EBP, but there are your institutions in the community that force me to stick to EBP principles. But, the fact is that there is no strong supervision in Iran on clinicians' performance*." (P-3)

High work load

The work pressure at the centers where the clinician works is also considered as another important barrier to the use of EBP. This high working pressure usually results in a lack of time for the clinician: *"Time constraint is also a problem because of high work pressure. When I was working in a hospital, I was so busy that I often forgot that I had to study for treating my patients."* (P-7)

Another participant who was a faculty member of the university told us about the high workloads: *"The workload at the universities is high for the faculty members. When the time of a*

faculty member is filled with classes, research, and executive responsibilities, there would be no more time left to implement EBP." (P-9)

Financial issues

Excessive attention to financial issues, such as the amount of income in private clinics, was another major barrier posed by SLPs. For example, the clinician is forced by the clinic to order more therapeutic sessions against the real need of the clients so as to increase the income for clinic. One of the participants said:

> *"Unfortunately, in some clinics, to have more income, the clinician is forced to do things that are not based on the evidence. For example, in the private clinic where I work, while the child needs a single therapeutic session, the clinician will give two treatment sessions to the child."* (P-6)

Extra organizational factors

The participants reported some factors beyond the organizational level which prevent them from proper use of EBP. This theme comprises of five subthemes, including lack of evidence in speech and language pathology area, lack of insurance support, lack of public awareness and knowledge about EBP, society culture, and financial problems.

Lack of evidence in speech and language area (Lack of native evidence, guidelines, and norms)

Participants believed that speech and language pathology is a new discipline, and so the evidence in this area is limited. Limited evidence can cause problems for more use of EBP by SLPs. One of the SLPs said:

> *"There is really a limited amount of evidence in some areas of speech and language pathology and limited evidence - or evidence that is not of high quality - in the area of language disorders has become a challenge for clinicians,"* (P-4)

The lack of native evidence, norms, and instruments in Iran was one of the barriers related to the lack of evidence, too:

"Another problem we have is the lack of standard instruments for the Persian language. Even when we have the standard instruments, we do not have the standard norms or cut scores about them." (P-2)

Lack of insurance support

The lack of insurance support for the speech and language pathology services in Iran was also suggested by SLPs as an important barrier why they do not implement EBP.

> *"Because of the barriers that exist, EBP is really hard to use. See, for example, insurance services. In some countries, speech and language pathology services are covered by insurance. This insurance support prevents families from abandoning appropriate treatment options due to financial constraints. Unfortunately, in Iran, because of the lack of insurance coverage, many families do not choose the best treatment options when their children need more intensive services."* (P-2)

Lack of public awareness and knowledge about EBP

Participants referred to the lack of public awareness and knowledge about EBP in the society. They believed their experiences have shown that families who are not aware of EBP create problems for the use of EBP by clinicians. One of our participants said,

"Unfortunately, our clients' families do not have the proper knowledge about EBP. Often, they do not participate in decision making. They are resisting the implementation of new treatments and so on. This lack of awareness prevents us from working on EBP." (P-3)

Culture of the society

According to the participants of the study, there are some cultural characteristics in their society which are in conflict with EBP and a hallmark of EBP use. They believed that some of these characteristics were related to the clinicians and some were related to families. For instance, one of these cultural points mentioned was the 'culture of comfort' in the society or unwillingness to try hard, a general comfort-seeking attitude that avoids hardship, effort, and labor. One of the participants said:

"I will send a book or an article with English language to my colleagues to study, but they are not welcome at all, and their desire is to learn only through lectures or workshops and not an attempt to learn. Unfortunately, there is no need to try to learn new things in our culture." (P-13)

Vesting the clinical decision making to the clinicians due to the physician-centered culture among the people, the concept that patients and families rely too much on the physician's decisions and avoid playing an active role in deciding on the treatment procedures, was another barrier stated by SLPs:

"One of the principles of EBP is that if you have several options for treatment, you should involve the family in clinical decision making. My experience has been that it is impossible to suggest options for the family and they will participate in

decision making. Everyone answers that you know better, whatever you choose." (P-6)

Financial problems

The participants believed that financial problems of some of the clients and their families could affect the clinician's use of the EBP. The following statement describes the financial problems of a clients' family as a barrier to implement EBP by SLPs:

"Sometimes I want to use a treatment plan for an autistic child based on the evidence, which requires frequent and intensive sessions within a week. But the family's financial problems do not allow them to afford the cost of the child's treatment." (P-2)

Discussion

The present study aimed to identify the barriers of implementing EBP among Iranian SLPs. The results showed that SLPs had experienced a wide variety of barriers to use EBP in clinical practice. These barriers included three themes: individual factors, organizational (work place) factors, and extra organizational factors. These barriers are discussed below.

Comparison of the results of the present study with those of the previous studies shows that the identified barriers are a comprehensive collection of barriers reported by various health care professions in the previous studies . However, the qualitative approach used in the present study led to deeper and more precise identification of the barriers perceived by SLPs. That is, that some of the barriers stated by the SLPs were not mentioned in previous studies. These barriers included lack of insurance support, lack of public awareness and knowledge about EBP, supervision weakness, and the culture of the society. It is possible that these barriers are more closely related to Iranian SLPs. Yet, other barriers related to individual factors reported in the

present study, such as lack of knowledge about EBP)lack of research skills, lack of understanding of statistical analyses, and poor ability to critically evaluate(, negative attitudes, and lack of time, have abundantly been reported in the previous studies . Lack of time is one of the most important barriers to EBP use that has been reported in many studies by SLPs , nurses, physiotherapists , occupational therapists , dentists, and other health care professions . Time management trainings for health care professionals can be an important step to resolve this issue .

With regard to the organizational barriers, the SLPs who participated in the present study claimed that the lack of academic education about EPB represented a significant barrier to their ability to implement EBP. To solve this barrier, the curriculum of academic education of speech and language pathology should be revised and include proper educations about EBP. Also, SLPs should participate in workshops and in-service training programs related to the EBP for updating their knowledge. Lack of facilities, supervision weakness, and financial issues are the barriers that may be common in low and middle income countries . Another organizational barrier reported by SLPs was high work load, To solve this barrier, it is suggested that more employees be hired .

Lack of evidence in the speech and language area, lack of insurance support, lack of public awareness and knowledge about EBP, the culture of the society, and financial problems are the extra organizational barriers reported by SLPs. Lack of evidence and source in the speech and language area was an important barrier reported by SLPs; this barrier is one of the most important barriers mentioned by SLPs and other health care professions . Speech and language pathology is among the new and very broad disciplines and therefore limited evidence is reported in this discipline. It should be noted though that the amount of evidence in this discipline is

increasing. The SLPs mentioned lack of insurance support as one of the important barriers to implement EBP. To deal with this problem, it seems that there is a need to change governmental and insurance laws regarding rehabilitations services in Iran. Lack of public awareness and knowledge about EBP as well as the culture of the society are two public barriers that need to be addressed by general education about EBP in Iranian society.

To sum up, it seems that the present study successfully identified what SLPs perceived to be the barriers to implementing EBP. It should be noted that the present study was conducted using a qualitative design and identified barriers that could be specific to SLPs and especially Iranian SLPs. So, some of the barriers expressed by our participants were less frequently reported in the previous studies.

Conclusion

Overall, the results of the current study revealed the perceived barriers by SLPs who worked in Iran preventing them from successfully implementing of the EBP. Some of the barriers are consistent with those facing SLPs in other countries and others were additional barriers that were experienced by our participants. The barriers mentioned in our study can help SLPs, administrators, speech and language pathology educators, and researchers to identify barriers which may prevent effective applying of the EBP and subsequently help them take actions to resolve them.

The present study has some limitations. All interviews were performed with SLPs in three cities (Tehran, Isfahan, and Karaj), and so it was difficult to cover more cities in Iran. Since no previous qualitative study was found in this regard, the results of the present study were compared with those of the quantitative studies. Despite these limitations, detecting the barriers

as perceived by SLPs may facilitate better use of EBP and finally deliver higher quality care to patients.

Further qualitative research is needed to investigate whether our results apply to SLPs living in other parts of Iran, as well as for other health related clinicians. Also, to assess the generalizability and validity of our results, more studies with quantitative methods are needed. Developing a questionnaire which identifies barriers to use EBP and evaluation of its psychometric properties is suggested.

Conflict of interest: The authors declare that they have no competing interests.

1 ## References:

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2 Table 1: Demographic characteristics of the participants

Participant	Gender	Age in year	Educational degree	Experience in year	Clinical Field	Age of Clients	Practice Setting
P-01	Male	24	BSc	2	Dyslexia	Children and Adults	G and P
P-02	Male	28	MSc	5	Language disorder	Children	G and P
P-03	Male	38	PhD	15	Fluency disorder	Children and Adults	G
P-04	Female	29	MSc	5	Language disorder	Children	G and P
P-05	Female	38	MSc	16	Fluency disorder	Children and Adults	G and P
P-06	Male	32	MSc	10	Fluency disorder	Children and Adults	P
P-07	Female	31	MSc	8	Voice disorder	Adults	G and P
P-08	Female	32	PhD	12	Fluency disorder	Children and Adults	G and P
P-09	Female	43	PhD	18	Acquired language disorder	Adults	G
P-10	Female	37	PhD	15	Dysphagia and voice disorder	Adults	G
P-11	Male	28	BSc	5	Dysphagia	Adults	P
P-12	Female	31	BSc	9	Articulation and phonological disorder	Children	G and P
P-13	Female	35	PhD	13	Language disorder	Children	G
P-14	Male	28	BSc	5	Language disorder	Children and Adults	P

3 P= participant, BSc= Bachelor of Science, MSc= Master Science, G= Governmental, P= Private

Table 2: The themes, and subthemes

Themes	Subthemes
Individual factors	Lack of knowledge and skills related to EBP Personal negative attitudes Personal problems
Organization (Work place) factors	Lack of academic education about EBP Lack of facilities Supervision weakness High workloads Financial issues
Extra organization factors	Lack of evidence in SLP area (Lack of native evidence, guidelines, and norms) Lack of insurance support Lack of public awareness and knowledge about EBP Society culture Financial problems

2 Revision 1

4 comments · 31 Aug 2021 – 15 Sep 2021

Referee 1 Reviewer

ACCEPT 31 Aug 2021

Dear Authors
Thank you very much for your efforts. Your paper looked much more concise and comprehensive.
The final decision will be made by the Editor in Chief.
Best of Luck,

Referee 2 Reviewer

MAJOR REVISION 13 Sep 2021

Dear authors
Thanks for all the efforts. Almost all of the desired corrections have been made, with the exception of a few, which are mentioned again below. In particular, the first comment, a key question from the reviewer regarding the rationale for and novelty of the present study, remains unanswered.
1. Why did you not mention and review the 10 barriers reported in the Tohidast study (2017)? And basically, why did you repeat this study when Tohidast has already reported 10 barriers to the use of EBP in a quantitative study on 200 Iranian SLPs using an SLP-EBPQ, which was created following a literature review and a qualitative study involving interviews with 14 SLPs, which is more comprehensive than the present study (tohidast, 2017)?
2. For the practice setting criterion, why did you not mention working in a clinical or academic setting?
3. What was your criterion for selecting cities for sampling? Were all 14 SLPs selected from big cities that usually have more facilities? This may prevent diversity in the interviewees' responses.
4. Were interviewees familiar with the interviewer? The degree of familiarity and intimacy between them will affect the interviewees' responses.
5. Some comments have been placed in the Word file of the attached manuscript.

Best regards

Associate Editor

MINOR REVISION 15 Sep 2021

Dear Authors
Thank you very much for submitting the revised manuscript.
Our respected reviewers and I read the revised article, and I believe there are still issues that need to be considered.
Please implement the reviewers' comments point by point and resubmit the revised version for a final decision.
All the best

Editor-in-Chief MINOR REVISION 15 Sep 2021

Dear Authors
According to the reviewers' and associate editor's comments, your article needs minor revision. Please respond to the reviewers' comments point by point and submit the required files.

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to Reviewers:
We would like to thank the reviewers for their comments on our manuscript. It is absolutely clear that the reviewers have spent a lot of time reading and commenting on our work and we are really grateful for that. We have done our best to address all the comments. We have highlighted new changes in the manuscript with Green Highlights and some responses to reviewers presented below with red font.

Comments from the Editors and Reviewers:
Reviewers' Comments:

Reviewer 1:

Dear authors

Thanks for all the efforts, almost all of the desired corrections have been made, with the exception of a few, which are mentioned again below. Specially, the first comment as a key question of the reviewer in relation to why and the novelty of the present study remains unanswered.

1. Why did not you mention and review 10 reported barriers of Tohidast study (2017)? Response: We have added the barriers reported by Tohidast et al. to the manuscript. It should be noted that some of the barriers were similar to the other studies that mentioned in the introduction.

And basically, why did you repeat this study while Tohidast have already reported 10 barriers to the use of EBP in a quantitative study on 200 Iranian SLPs using a SLP-EBPQ which was created following a literature review and qualitative study via an interview with 14 SLPs, which is more comprehensive than the present study (tohidast, 2017)?

Response: we were not repeating the Tohidast et al. study. The mentioned study is a quantitative study. However, quantitative studies such as Tohidast et al. study in 2017 are comprehensive than qualitative studies, but qualitative methods can provide a deeper insights and perceptions regarding the topic that undertake study. Both of these methods of study are important and useful. In the Tohidast et al. study on 2017, the SLP-EBPQ is not the questionnaire that used.

2. in practice setting criterion, why did not you mention working in the clinical or academic setting? Response: we have added this to Table 1.

3. What was your criterion for selecting sampling cities? all 14 SLPs were selected from big cities that usually have more facilities? This may prevent diversity in the interviewees' responses. Response: we have selected the samples from three cities according to our limitations especially financials issues. Therefore, we have selected some cities which were available to us.

Previously, we have mentioned this to the limitations of the study: “All interviews were performed with SLPs in three cities (Tehran, Isfahan, and Karaj), and so it was difficult to cover more cities in Iran.”

4. Were interviewees familiar with the interviewer? The amount of familiarity and intimacy between them will impact on the interviewees' responses. Response: Some interviewees were familiar with interviewer. This issue can lead to an appropriate interview.

5. Some comments have been placed in the Word file of the attached manuscript. Response: Thank you, we have revised these.

Best regards

3 Revision 2

3 comments · 12 Oct 2021 – 14 Oct 2021

Referee 2 Reviewer

ACCEPT 12 Oct 2021

Dear Author/s
Thanks for all the efforts. The requested corrections have been made completely. The manuscript in its present form is ready for publication in the MERJH.

Associate Editor

ACCEPT 14 Oct 2021

Dear author/s
Thanks for all your efforts to elevate the quality of the manuscript. Now, I am going to hand the paper over to the editors-in-chief for a final decision.
All the best

Editor-in-Chief

ACCEPT 14 Oct 2021

Dear Authors
We are pleased to inform you that your article is accepted for publication in the MEJRHS. We hope to receive other suitable articles from your group.