



## Original Article

# Educational Factors in Evidence-based Rehabilitation: A Qualitative Study in Iran

Mohammad Hasan Keshavarzi<sup>1</sup>, Seyedeh Zahra Nahardani<sup>2</sup>, Maryam Jalali<sup>3</sup>, Marzieh Pashmdarfard<sup>4\*</sup>

1. Department of Medical Education, Clinical Educational Center, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.

2. Rehabilitation Research Center, Iran University of Medical Sciences, Tehran, Iran.

3. Department of Orthotics and Prosthetics, Rehabilitation Research Center, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran.

4. Department of Occupational Therapy, Physiotherapy Research Center, School of Rehabilitation, Shahid Beheshti University of Medical Sciences, Tehran, Iran.



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## ABSTRACT

**Background and Objectives:** Evidence-based Practice has been shown to improve patient care and outcomes, and studies emphasize that one of the barriers to the non-use of evidence-based practice (EBP) is the lack of proper education in this area. This study aims to develop educational factors in evidence-based rehabilitation.

**Methods:** The study was conducted using the content analysis method. The study population was the rehabilitation educators in rehabilitation schools in Iran. Purposive sampling and semi structured interviews were applied to gather the data. A total of 16 rehabilitation educators were interviewed. Data analysis was conducted using Graneheim and Lundman methods.

**Results:** The findings of this study showed that evidence-based practice (EBP) is an educational (practical) process. Effective educational factors in evidence-based performance begin with the consideration of the needs of the patients and then look for the best methods to find the best evidence. Four themes, 10 categories, and 37 subcategories have been extracted from the study. From the analysis of the data obtained from the interviews, four main themes of “learning to find scientific evidence”, “interaction in the field of education,” “restrictive factors,” and “facilitating factors” emerged.

**Conclusion:** Finally, they considered the triple principles of the best evidence medical education, which include the use of available scientific evidence, clinical experiences, and the client’s needs. For treatment, it integrates these parameters, and proper and timely education plays a fundamental role in this process.

**Keywords:** Evidence-based, Rehabilitation education, Content analysis



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### \* Corresponding Author:

Marzieh Pashmdarfard, PhD.

Address: Department of Occupational Therapy, Physiotherapy Research Center, School of Rehabilitation, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Tel: +98 (21) 77548942

E-mail: [mpashmdarfard@gmail.com](mailto:mpashmdarfard@gmail.com)

↑ *What is “already known” in this topic:*

*Much research has been conducted on Evidence Based Practice (EBP) in rehabilitation fields. Most of the literature published in the last two decades and along with the emergence and expansion of EBP in the field of rehabilitation sciences were published by scholars of this field and have attempted to promote this process and introduce its benefits of it.*

→ *What this article adds:*

*EBP is an educational (practical) process. Effective educational factors in performance evidence begin by considering the needs of patients, and then the best methods are selected based on the best evidence of medical education, which includes: the use of available scientific evidence, clinical experiences, and client needs for treatment. These parameters and correct and timely training play an essential role in this process.*

## Introduction

The development and reform in training require an understanding of the education process, modern methods of implementation, recognition of financial resources and facilities, and awareness of the role and duties of human resources. The inability to properly plan to utilize the skills needed by the learners, such as clinical reasoning, problem-solving and critical thinking has made it necessary to keep up with the recent developments in the field [1, 2].

Evidence-based therapy is a systematic process that involves finding, analyzing, and utilizing the best scientific research to help make scientific reasoning. This process begins with designing a clinical question, continuing with the search for relevant resources, and evaluating its credibility, validity, reliability, and usefulness, which ends with the implementation of clinical research findings and evaluating treatment effectiveness [3].

Evidence-based practice (EBP) individualizes healthcare decision-making and service delivery by “the conscientious, explicit, judicious and reasonable use of the best available evidence”, integrating clinical expertise, and patient values and preferences with the best available research information” [4, 5]. EBP has many benefits, such as making services more effective for each individual, more responsive to clients and their families, providing equal treatment to clients based on scientific evidence, up-to-date therapists, improving the quality of service, enhancing professional credibility, encouraging adherence to ethical principles, promoting interdisciplinary collaboration and communication, encouraging continued learning,

promoting service delivery, more appropriate clinical decision-making, establishing appropriate communication between research and clinical services, and the need to use it in many health [6, 7].

In Iran, many efforts have been made to improve rehabilitation services to play a more constructive role in the health system [8]. In addition, the use of EBP does not ignore the clinicians’ experiences; rather it considers these experiences necessary to integrate with scientific evidence and patients’ needs [9] which are of great importance in the rehabilitation field. Therefore, rehabilitation specialists can properly improve the level of service delivery and provide healthier, more qualified, shorter, more effective, reasonable, accurate, and patient-oriented treatments [10].

Much research has been conducted on EBP in rehabilitation fields in different countries [11]. Most of the literature published in the last two decades and along with the emergence and expansion of EBP in the field of rehabilitation sciences were published by scholars of this field and have attempted to promote this process and introduce its benefits of it [6, 7, 12].

Most of these studies have been conducted using a quantitative method, and have largely examined the therapists’ knowledge, attitude, and practice toward EBP [11, 13]. In this study, general documents for other professions have been used. While each discipline has its particular conditions that can influence the intake of EBP, cultural conditions are also influential in this regard [14]. Considering the importance of EBP in rehabilitation sciences and meeting the community’s needs, this study aimed to explain the effective educational factors in adopting EBP in the fields of rehabilitation sciences.

## Materials and Methods

This study used inductive qualitative content analysis to interpret subjective data scientifically, encode data through a regular process, and identify themes and patterns [15, 16]. All interviews were tape-recorded and then transcribed and analyzed. All principles of informed consent, anonymity, confidentiality, the right to withdraw from participation at any time, and ethical obligations were fully observed in the present research.

Accordingly, 16 face-to-face interviews were conducted with rehabilitation health professionals aged 24-43 until each new interview yielded little or no new data. This study was performed in April-September 2021. Table 1 lists the demographic characteristics of the participants. The research setting in this study was public, private clinics, hospitals, colleges, or any other center where rehabilitation experts provide services. The Graneheim and Lundman methods were used to analyze the data [17].

The interview transcripts were profoundly read several times, then meaningful units were extracted and the initial codes were formed by classifying similarities and differences. In the last step, the main themes emerged from the original codes and the main categories.

### Trustworthiness

To ensure the trustworthiness of the data, Lincoln and Guba's four evaluative criteria, including credibility, dependability, transferability, and conformability, were used [15]. In this study, the prolonged engagement of the researcher with the participants, interviews with both men and women, member check of transcriptions and the extracted primary codes by the interviewees, data analysis by a team of researchers, and maximum

variation sampling, were performed to enhance the credibility of the data. To establish dependability, in every step of coding, three separate researchers who were familiar with qualitative analysis and were experts in the area under study audited the interview transcriptions, both the transcriptions and the obtained codes, and their comments and suggestions were considered in the data analysis. Transferability was ensured through maximum variation sampling, clear, and transparent reporting of the data and results, enabling auditability.

## Results

Four themes, 10 categories, and 37 subcategories have been extracted from the study. From the analysis of the data obtained from the interviews, four main themes, namely, "learning to find scientific evidence", "interaction in the field of education," "restrictive factors," and "facilitating factors" emerged (Table 2).

### 1<sup>st</sup> theme: Learning to find scientific evidence

After data analysis, rehabilitation professionals seek evidence to implement evidence-based practice. They use both "formal education", and "self-learning ability".

#### Formal education

Participants in this study sought formal education as the 1<sup>st</sup> step to accessing the relevant scientific information. To achieve this goal, they used four approaches "specialist professors", "library searches", "peers experiences" and "participating workshops and congresses".

Library search and the use of specialist librarians are also other methods of learning to find the best evidence base.

**Table 1.** Demographic information

Demographic Information		No.
Gender	Female	7
	Male	9
Age (y)		24-43
Field of expertise	Optometry	2
	Physiotherapy	3
	Occupational therapy	4
	Speech and language therapy	2
	Rehabilitation management	3
	Audiology	2

**Table 2.** Effective educational factors

Themes	Main Categories	Sub-categories
Finding scientific evidence	External evidence	Internet search Library search Workshops and congresses
	Internal evidence	Personal experiences Peers experiences Specialist professors Interaction with other disciplines
Interactions in the field of education	Studentship experiences	Postgraduate degree Academic commitment Educational self-sufficiency Positive effects of colleagues
	Learning and teaching	Being an instructor Attending scientific events Working with patients Interaction with other disciplines
	Research activity	Developing a research dissertation Developing Research projects Search for scientific resources
Restrictive factors	Educational gaps	Lack of receiving professional training Poor theory training Incomprehensive educational contents
	Environmental factors	Poor facilities Poor supervision Lack of insurance coverage Workload Financial limitations Lack of access to evidence Lack of national evidence Problems with workshops and congresses
		Personal problems of the therapists Personal traits of the therapists Lack of knowledge and skills
		Observing expert instructors Professional ethics Role modeling
Facilitating factors	Role model professors	Observing expert instructors Professional ethics Role modeling
	Access to cyberspace	Access to cyberspace Finding evidence in classrooms Proper use of e-learning

"The library is a great place to find different topics, especially librarians help people how to search. ...." (Participant No. 1).

Attending workshops and congresses was another useful method to seek evidence and stay up to date. In this regard, an occupational therapist said:

"The courses run as workshops, I think, can help, and the cues that the workshops provide help me to go into details and to search for more information in that particular field." (Participant No. 15).

### Self-learning ability

From the participants' perspective to find valid evidence, in addition to using formal education, it is beneficial to use self-learning ability. Participants in this study used their experiences, search the internet, and interact with other disciplines to explore the evidence.

Searching the Internet to find relevant papers as well as reviewing pertinent websites are two important actions of rehabilitation specialists to access information. One audiologist said, "I usually surf the internet to find out about hearing loss or therapeutic processes... I read case reports or even visit websites that share their clinical experiences. (Participant No. 5)

### 2<sup>nd</sup> theme: Interaction in the field of education student life experiences

According to the participants in this study, attending postgraduate courses and being a student has a critical role and provides the condition for using EBP.

A speech therapist elaborated on the impact of academic studentship and said: "well... I think my years of experience in postgraduate degree play a significant role because the cases you interact with are more relevant to the education and research you are engaged in .... It is a way to bridge the theory-practice gap and interconnect them. (Participant No. 1)

### Teaching and learning

Participants with university teaching experience spoke extensively about the impact of teaching and learning activities, and teaching and learning were considered crucial drivers for greater use of the EBP. A faculty member emphasized the importance of being a teacher at university and said:

"Well... I try to have more to say to students each time I teach a specific course... And if something has already been outdated, is under question, or if there's any doubt about it, I try to make them aware of it and highlight the lack of information and inform them about the new concepts." (Participant No. 13)

### Engagement in research activity

The other notion mentioned by the participants was the stimulating effect of research activities. One of the participants said: "look..., for example, if a journal club is held ... if we are active, we should prepare something to present for every session. This implies that we all learn together which, I think is a great help. This increases my motivation so I read more and more and apply my findings to practice to integrate the evidence with the cases I encounter (Participant No. 16).

### 3<sup>rd</sup> theme: Restrictive factors

The participants' statements identified a category that revealed the barriers to learning to use the best evidence, divided into three sub-categories, "educational gap", "environmental factors" and "individual factors".

### Educational Gap

Many participants in this study emphasized that they did not receive evidence-based practice education in universities. The optometrist's view on the educational gap was:

"Did I have a professor to explain such a concept to me? This teacher leads me as a student in a specific direction and tells the students to go and search a specific website. Teachers encourage students to read papers as a class activity... do scanning for the method section of a scientific paper... Explain the keywords of the paper to students to let them read more papers in that area (Participant No. 7).

### Environmental factors

Lack of adequate facilities and poor clinical spaces were other barriers facing therapists in the education of EBP. One of the therapists working in the private sector said: "I don't know why, maybe due to their commitment, but one problem is that few colleagues work in a suitable environment compatible with what references say about the clinics and their properties.... since it is essential in EBP. I mean, if I am supposed to work with a hearing-impaired child, I need to have appropriate clinical facilities for this purpose according to EBP. If I work with an autism child, I have to design a workroom specif-

ically for children with autism. If this does not happen, I cannot implement evidence-based practice. At least I am sure that this is true about autism.” (Participant No. 4).

### Personal factors

According to the participants in this study, one of the most important barriers is those related to the therapists and their conditions. “The therapist’s problems,” “personality traits,” and “lack of knowledge and skills” are the critical barriers to therapists emerging from the analysis of data.

Feeling overconfident about one’s knowledge and clinical abilities were other obstacles associated with the therapists’ personality traits. “One participant pinpointed the false perception of graduate students about their abilities and said:

“Most students feel saturated upon graduating from college and perceive themselves specialists who no longer need to learn. This is something only felt by students who feel they do not need it anymore... perhaps they don’t feel they know everything but they think what they know is enough (Participant No.1).

### 4<sup>th</sup> theme: Facilitating factors

This category includes education that is already available to participants to use EBP and promotes this process. The extracted facilitators included “role model professors” and “access to cyberspace.”

### Role model professors

The experience of one participant on the facilitator role of successful professors was as below:” once in the clinic I encounter a complicated case suffering poor growth of the corpus callosum. My colleagues introduced Dr... who is an expert in this field. I met him and he introduced a book to me that was very helpful. Since this was a new case and I had no previous experience working with a similar patient, the guidance of this professor was beneficial to me “(Participant No. 2).

### E-learning

Participants in this study believed that the existence of education, such as YouTube and educational websites is another category that facilitates finding evidence-based medicine. A participant highlighted the role of social networks, saying, “now, the recent increase in using YouTube has created a great opportunity for colleagues to share their experiences.” (Participant No.12)

## Discussion

In this study, effective factors in the education of EBP in rehabilitation sciences have been examined. In one study participated by three groups of speech and language pathologists, physiotherapists, and occupational therapists, reference books were named as the most popular sources of information referred to by the participants for clinical decision-making. However, the participants claimed that although such references are readily available, they may not contain very recent scientific evidence [18].

Physiotherapists have described peer experiences as the 1<sup>st</sup> source of information for clinical decision-making, and have introduced seeking research sources as their 2<sup>nd</sup> source of scientific data [19]. Occupational therapists who had a clinical practice in New Zealand, Australia [20] Canada [21], and the United States [22] also mentioned colleagues’ clinical experiences as their most used source of clinical information rather than research findings [23].

Based on the results, it may be possible to consider individual factors as the basic motivators leading therapists to learn EBP, which is enforced by other stimuli in the context of clinical practice. For instance, a therapist with high self-expectation to provide the best treatment for the patients is more willing to use Evidence-based Practice when faced with a clinical challenge and a rare case of clinical interest [24].

In addition, one of these barriers is the lack of proficiency in English, which is the global language of science and evidence. Today, most scientific evidence, such as papers and reference books published in English [23, 25], and limited papers are published in languages other than English [26]. Therefore, it seems that not only Iranian therapists, but many other therapists in other countries are facing language problems. In addition, this issue has been reported in many studies on nurses [20]. Studies conducted on occupational therapists in Iran, Germany, and other countries have confirmed similar findings [25, 27]. The lack of facilities for using EBP has been cited in previous studies and the participants of the present study confirmed it [27].

Physicians [28], and hand therapists in the United States [29], have reported restrictions in accessing full-text papers in many studies, therapists in New Zealand [30], Australian occupational therapists [31], and Iranian occupational therapists [27], it can conclude that such barriers are universal. The presence of instructors who motivate and encourage the practice of evidence-



based medicine was one of the facilitators that some of the participants expressed, which has been implicated in other studies [32].

## Conclusion

Nowadays, when we are subject to extensive changes in all fields, the use of EBP is a necessity. The findings of this study showed that EBP is an educational (practical) process. Effective educational factors in evidence-based performance begin by considering the needs of the patients and then looking for the best methods to find the best evidence. Finally, they considered the triple principles of the best evidence medical education, which include the use of available scientific evidence, clinical experiences, and the client's needs. For treatment, it integrates these parameters and, proper and timely education plays a fundamental role in this process.

## Ethical Considerations

### Compliance with ethical guidelines

This study has been approved by the Ethics Committee of the Iran University of Medical Sciences (IR.IUMS.1400.101).

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### Authors' contributions

Conceptualization, Supervision: Mohammad Hasan Keshavarzi, Seyedeh Zahra Nahardani; Methodology: Mohammad Hasan Keshavarzi, Seyedeh Zahra Nahardani, and Maryam Jalali; Investigation and Writing—review & editing: Marzieh Pashmdarard and Seyedeh Zahra Nahardani; Writing—original draft: Mohammad Hasan Keshavarzi and Seyedeh Zahra Nahardani.

### Conflict of interest

The authors declared no conflict of interest.

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## مقاله پژوهشی

# فاکتورهای آموزشی در توانبخشی مبتنی بر شواهد: مطالعه کیفی در ایران

محمد حسن کشاورزی<sup>۱</sup>، سیده زهرا نهاردانی<sup>۲</sup>، مریم جلالی<sup>۳</sup>، مرضیه پشم‌دار فرد<sup>۴</sup>

۱. گروه آموزش پزشکی، مرکز آموزشی بالینی، دانشکده پزشکی، دانشگاه علوم پزشکی شیراز، شیراز، ایران.
۲. مرکز تحقیقات توانبخشی، دانشگاه علوم پزشکی ایران، تهران، ایران.
۳. گروه ارتز و پروتز، مرکز تحقیقات توانبخشی، دانشکده علوم پزشکی ایران، تهران، ایران.
۴. گروه کاردرمانی، مرکز تحقیقات فیزیوتراپی، دانشکده توانبخشی، دانشگاه علوم پزشکی شهید بهشتی، تهران، ایران.

## چکیده

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**مقدمه:** نشان داده شده است که تمرین مبتنی بر شواهد مراقبت و پیامدهای بیمار را بهبود می‌بخشد. مطالعات تاکید می‌کنند که یکی از موانع عدم استفاده از روش مبتنی بر شواهد (EBP) عدم آموزش صحیح در این زمینه است. این مطالعه با هدف توسعه عوامل آموزشی در توانبخشی مبتنی بر شواهد انجام شده است.

**مواد و روش‌ها:** این پژوهش با استفاده از روش تحلیل محتوا انجام شد. جامعه پژوهش مربیان توانبخشی دانشکده‌های توانبخشی در ایران بودند. برای جمع‌آوری داده‌ها از نمونه‌گیری هدفمند و مصاحبه نیمه ساختاریافته استفاده شد. در مجموع ۱۶ مربی توانبخشی مصاحبه شدند. تجزیه و تحلیل داده‌ها با استفاده از روش‌های گرانهایم و لاندمن انجام شد.

**یافته‌ها:** چهار موضوع، ۱۰ مقوله و ۳۷ زیرمجموعه از پژوهش استخراج شد. از تحلیل داده‌های به‌دست‌آمده از مصاحبه‌ها، چهار موضوع اصلی «یادگیری برای یافتن شواهد علمی»، «تعامل در حوزه آموزش»، «عوامل محدودکننده» و «عوامل تسهیل‌کننده» پدیدار شد.

**نتیجه‌گیری:** یافته‌های این مطالعه نشان داد که تمرین مبتنی بر شواهد (EBP) یک فرآیند آموزشی (عملی) است. عوامل آموزشی مؤثر در تمرین مبتنی بر شواهد با در نظر گرفتن نیازهای بیماران شروع می‌شود و سپس به دنبال بهترین روش‌ها برای یافتن بهترین ادامه می‌یابد. در نهایت، اصول سه‌گانه بهترین شواهد آموزش پزشکی که شامل استفاده از شواهد علمی موجود، تجربیات بالینی و نیازهای مراجع می‌باشد، به کار گرفته می‌شود. درمانگرانی که مبتنی بر شواهد کار می‌کنند، این پارامترها را یکپارچه می‌کنند و آموزش صحیح و به موقع نقش اساسی در به کارگیری تمرین مبتنی بر شواهد دارد.

## کلیدواژه‌ها:

مبتنی بر شواهد، آموزش توانبخشی، تحلیل محتوا



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## \* نویسنده مسئول:

مرضیه پشم‌دار فرد

نشانی: تهران، دانشگاه شهید بهشتی، دانشکده توانبخشی، گروه کاردرمانی.

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رایانامه: Mpashmdarfard@sbmu.ac.ir