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# Research Paper: Physiotherapists' Perception of Evidence-Based Practice

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## ABSTRACT

**Introduction:** Evidence-Based Practice (EBP) and Research Utilization (RU) were introduced to physiotherapy more than two decades ago. Physiotherapists with their professional responsibility to provide the best care, will find practical evidence-based physiotherapy a veritable goldmine of useful information. Recently, evidence-based physiotherapy, as a means to improve the quality of physical therapy intervention, has become an interesting topic for the researchers all over the world. However, few studies have researched EBP in Iranian community of physiotherapists. This study was conducted to investigate the perceptions and experiences of EBP among Iranian physiotherapists and the resources of evidence for a duration of 8 months, from 2015 to 2016.

**Material and Methods:** In this qualitative study, 15 physiotherapists holding at least a BSc. degree and with two years of relevant work experience, participated. Purposeful sampling method was used to recruit the samples. The data were collected via semi-organized in-depth interviews. Content analysis was used to analyze the data according to Cheevakumjorn's method.

**Results:** The collected data were divided into two groups containing the definition of EBP and evidence resources for physiotherapists. The participants were divided into two groups. The first group contained the physiotherapists who became familiar with EBP at university. The contributors who had not passed this course at university were included in the second group. The first group provided more detailed definitions and implemented evidence into their clinical work with greater certainty. The data related to the nature of evidence were put into 4 subgroups; experiences of colleagues, acquired knowledge, therapist's experience, and obtained knowledge through the patients.

**Conclusion:** Most physiotherapists participating in this study were somewhat familiar with EBP. Since there are some impediments such as poor clinical training, lack of role models during university education, weak research skills and critical evaluation of research, as well as ignoring the importance of life-long learning, most physiotherapists are not able to fully apply evidence in their clinical practice. A comprehensive program for educating the physiotherapists can be an effective method to improve the physiotherapists' overall level of knowledge as well as the quality of the health care services they provide.

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## 1. Introduction

Professional competence is defined as the explicit use of knowledge obtained from evidence, skills, clinical judgments, and the patients' values and beliefs in daily performances [1]. One of the criteria for detecting a qualified physiotherapist is his or her ability to apply evidence in clinical practice [2]. In addition, receiving high quality and up-to-date services is the patient's right [3]. Evidence-Based Practice (EBP) is a part of the ethics codes approved in 2010 by American Physical Therapy Association (APTA) [4].

Over the past decade, physiotherapists have been encouraged to take an evidence-based approach to the practice, teaching, and research of physiotherapy [5]. EBP has been defined by Sackett et al. as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" [6]. Advances in medical technology, increased life expectancy, and growing cost of health care has made EBP a priority in the field of healthcare professionals [7]. Recently, applying evidence in daily practices has lowered health care costs, duration of hospitalization; and improved support from insurance companies [8]. Practitioners, who are unable to have life-long learning and cannot implement the evidence into practice, [9] fail to provide patients with the best, high quality services [10].

Physical therapy, like all other health care professions, is something more than application of scientific rules. Clinical experience, based on personal observation, reflection, and judgment, is also necessary to apply scientific knowledge into the treatment of individual patients. Despite numerous calls for a shift towards the use of research and scientific evidence in practice, most physical therapists continue to base their decisions largely on anecdotal evidence, and deliver treatment techniques with little scientific support [11].

Professionals, who favor the implementation of EBP, believe that scientific evidence is an important component to consider during clinical practice. Thus, EBP is of utmost priority in research. In the information Era, the growth rate of publishing articles was 3% per year [12, 13]. Despite large number of available evidence to be used in clinical practice, the practitioners complain about the gaps between research evidence and clinical practices [14]. This gap urged researchers around the world to conduct studies on the implementation of evidence into clinical practice. In recent years, studies on the perception and experiences of physiotherapists about EBP, were carried out in some countries. According to the results of these studies, many physical therapists believe that scientific evidence should be utilized in clinical practice, but there still remains some barriers such as lack of time, inability to understand statistical data, no support from employer, lack of resources, uninterested colleagues in EBP implementation, lack of interest, and lack of generalizability of the results [11, 15-17]. Most aspects of EBP have been studied in other countries, but due to the cultural, social, and facility discrepancies among the countries, conducting such studies in Iran is necessary as well.

## 2. Materials and Methods

This qualitative study was conducted with conventional content analysis method, since qualitative research is the best way to investigate practitioners' perceptions and experiences. The advantage of qualitative methods lies in their ability to systematically pursue the kinds of research questions that are not easily answered via experimental methods. Content analysis was used for data collection and analysis [18, 19]. This is perhaps the most common approach that has been used in qualitative research reported in health care studies. It is a useful approach for answering questions regarding the significant issues for a particular group of respondents [20]. All participants were informed about the study method and purpose. They were informed that participation in the study was voluntarily. They were also assured that their responses and identities would remain confidential and not revealed in research reports.

Participants were selected according to the purposeful sampling method. In this sampling method, the participants are chosen based on their particular features or characteristics that the researcher wishes to study, and also enables detailed exploration and understanding of the central themes. Maximum variation sampling, which is a type of purposive sampling, was used to select the participants with different perceptions, age groups, settings, and fields [21]. Physiotherapists with at least 2 years of clinical work experience were included in the study (Table 1). The informed consent were taken from all participants before study inception.

The researchers used a semi-structured interview protocol. The protocol contained open-ended questions created to pursue the study purpose and obtain information about the experience of physical therapists implementing the EBP. Before data collection, pilot interviews were carried out with 3 physiotherapists to ensure that the questions were not biased towards a particular out-

come. This process of review and pilot testing resulted in small changes in the questions. The questions of the study were open-ended and if the interviewer needed more information about a question, they would ask the participant to explain more. The interviews were recorded with a cellphone at a place and time agreed upon by the contributor and experimenter. The interviews took 15 to 60 minutes. All interviews were transcribed by the author and typed in Microsoft Word. Then, the highlighted codes and the transcripts were reviewed several times. Each transcript and code were checked by two professional qualitative researchers (peer check) (not author) and the participants (member check). Data collection was continued until there were no new themes or information emerged from the data. Data saturation was achieved after 14 interviews; however, an additional interview was conducted to make sure of no new code.

Data analysis based on Cheevakumjorn's method was done at the same time as data collection. In this method, the researcher read and reread the interview transcripts at first and then the research questions were chosen as a primary coding tool. As a result, a basis for the categorization of data was established. The data were then reread and the key concepts, phrases, and words related to each question were identified, underlined, and categorized [22]. Word processing was used to aid the content analysis of the interviews throughout a series of technical and intellectual operations: 1) Immersion in the transcripts, i.e., each full transcript was read several times to understand the experience, perceptions, and ideas of the contributors, 2) Coding each participant's responses for common themes and patterns, 3) Organization of data based on the template emerged from the main questions of the study, 4) Reading each transcript again to re-evaluate the themes and codes 5) Condensing and reflecting. These phases made it possible to gain a comprehensive insight of the data [1].

Data Immersion was achieved during short debriefing sessions after each interview, listening to all records between each interview, and reading the summaries from the discussions. Based on these activities, some necessary modifications were made to the interview guide for the following interviews. This method meant that the process of data analysis commenced as soon as data collection began.

The researcher used prolonged engagement, member check, peer check, and maximum variation sampling to ensure reliability of their results [21]. The researcher's credibility is also one of the important factors. Researchers were experienced in quantitative and qualitative studies and preferred the conduction of this study due to their interest in qualitative methods and the importance of EBP in physiotherapy.

## 3. Results

This study was approved by the Iran University of Medical Science Ethics Committee (ethics code: IR.IUMS.REC.1394.9311340006). The ethical rules considered in this study included taking informed consent after stating the study objectives to participants, giving the right to withdraw from the study, and keeping the names and information of the participants confidential.

The study contributors were 15 physiotherapists with different educational levels working in the fields of orthopedic, neurologic, cardiac, sports, burn, and pediatric rehabilitation. Five physiotherapists worked in hospital settings, 3 in private settings, and 7 in both settings. The participants' work experience ranged from 2 to 15 years. Table 1 presents other demographic information about the participants.

The researcher decided to divide the participants into two groups. The first group contained the therapists who had passed a course on EBP at university. The contributors who had not passed this course at university were included in the second group. The collected data were divided into two groups containing the definition of EBP and the resources of evidence for physiotherapists. The data related to the nature of evidence was placed in 4 subgroups containing experiences of colleagues, acquired knowledge, therapist's experience, and obtained knowledge of patients.

### Definition of evidence-based practice: Group one

The first group was familiar with the concept of EBP due to their education at university. Physiotherapists, graduated after 2007, were fully aware of the EBP definition because they had passed a course on it. According to the 35th rule approved in 2007 by the Supreme Council for Curriculum, a course with this title was included in the physiotherapy BSc. curriculum.

While most of the participants agreed that EBP is defined as practice based on evidence rather than on unverified belief, divergent views were expressed in relation to the details of EBP. One of the participants working in a pediatric hospital defined EBP as a treatment based on up-to-date (recent) articles and stated: *"Evidence-based physiotherapy is a scientific method of treatment. It means therapy according to the results of new and up-*

**Table 1.** Demographic information of participants

| Work Experience (Year) | Number of Participants | Gender/Number | Degree of Education |
|---|---|---|---|
| 2-5 | 6 | 5 Women, 1 Man | 4 BSc.* 1 MSc.** 1 PhD*** |
| 6-10 | 6 | 4 Women, 2 Men | 2 BSc. 2 MSc. 2 PhD |
| ≥11 | 3 | 1 Woman 2 Men | 2 BSc. 1 MSc. |
| Total | 15 | 10 Women, 5 Men | 8 BSc. 4 MSc. 3 Phd |

*Bachelor of Science, **Master of Science, ***Doctorate of Philosophy

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*to-date articles"*. One participant who was working in a public hospital, pointed out that articles are the results of multiple experiences and experiments by researchers. *"EBP is using the experiences of other physiotherapists. They experienced practically, investigated, experimented, and documented the results and we want to use these experiences"* he said.

Most of the participants defined EBP something like using new methods resulting from research. *"I think EBP is using the newest treatment methods, published articles, and papers"* one of them stated. However, most of the contributors but one mentioned using evidence in treatment. *"EBP is implementing the accessible evidence obtained from the recent research in treating and assessing patients"*. One of the participants said that she only used the evidence when the patient was resistant to treatment. *"Certainly, sometimes the therapy process fails and referring to an article or text makes an improvement in treatment"* she said.

In fact, most of the participants described EBP as using evidence in clinical work but only a few mentioned the importance of the research in critical appraisal. *"We should treat patients according to the high quality research, our past experience in clinical work, and patients' values ... . We should use systematic reviews and RCT which have higher quality ... . There are some criteria to direct the research and using the higher quality ones, including: relevance of research topic, blindness of participants and therapist, and an appropriate method of study."* said one of the participants.

The experiences of a therapist can be a good resource for evidence. The experiences should be analyzed and criticized to become credible. For example, a participant working in a private hospital mentioned that: *"EBP means that we do not use our unproven experiences as evidence. We cannot claim that we will achieve these results in clinical practice without any experiments. We should have a valid resource and there should be a research confirming our comments."*

In addition, only a few physiotherapists noted the importance of patients' values and preferences. For example, one of the participants working in a neurology setting said: *"We should treat the patient and provide a protocol according to his/her wish which is essential for him/her. We should also conduct a follow-up with the patient to see the results of the treatment and the positive or negative aspects of the protocol that we used."*

Although she completely knew the meaning of EBP, she still had problems with finding and using evidence. She mentioned the presence of a gap between theory and practice. *"When I have a question during the treatment of my patient, I should know the most appropriate keyword that would help me in finding the appropriate evidence. But I do not know the most appropriate keywords. This may be the result of education ... . At university, the professor only defined EBP theoretically ... . It is not enough. They should have shown us the methods of treatment according to the evidence practically."*

## The definition of evidence-based practice: Group two

The contributors who had not passed EBP course at university were included in the second group. They were familiar with EBP through self-study or their presence in an educational environment. One of the physiotherapists who was not completely familiar with EBP said: *"EBP is a new phrase for physiotherapists. It has only recently become a course available at universities and we have not passed it."*

*"I did not pass an EBP course at university. I did not know about EBP until a few years ago. I think this course was included in university curriculum since 2009. I recognized this phrase when my wife started studying masters of physical therapy at university."* said a participant with an MSc. degree. He mentioned the importance of using up-to-date techniques for treatment and assessment. In addition, he noted the importance of life-long learning and said: *"Physiotherapists should upgrade themselves, be up-to-date, and well-read when it comes to use new treatment and assessment methods. They should stay up-to-date by reading new articles, in addition to the books as their information and methods are routine and fixed."*

A participant who has had 14 years of experience in pediatric rehabilitation said: *"EBP is an academic clinical practice, it is a treatment with a scientific base"*. Moreover, another participant holding a PhD degree said *"I knew about EBP because I am a university professor. When a patient comes, I should be able to treat with up-to-date methods due to my academic position. In this case I should review the articles in addition to books. I should also read the latest version of the books to see the new topics…. Not every evidence is applicable. I prefer to use systematic reviews and RCTs. For example, the methods used in conduction of some studies are not appropriate and standard in other cases. We should check that sample size, control group, follow up and all of the aspects were chosen appropriately. I cannot trust such evidence"*. Actually, most participants who have not passed a course on EBP at university knew that they should use evidence such as reference book, article, etc. None of them were familiar with the steps of EBP. Only one of the participants who was university professor mentioned the importance of critical appraising of evidence.

## Physiotherapists' resources of evidence

Most physiotherapists defined EBP as the implementation of up-to-date evidence in treatment. They mentioned two resources for obtaining evidence. The first one is virtual resources which are accessible from internet and various databases. Most participants mentioned valid articles which are accessible in databases like ISI Web of Science, Scopus, PubMed and ScienceDirect. Some of them stated that they used e-books as information resources. In fact, every evidence is the result of the experiments researchers had carried out. For example, a participant stated: *"I usually use PubMed, Ovid, and Science Direct as databases."* A participant with 6 years of clinical experience said: *"There are some primary databases such as ISI Web of Science, Scopus, PubMed and ScienceDirect."*

Two participants introduced e-books as their resource for evidence. Nowadays, with the growth of virtual internet networks, applications such as telegram have become common sources of evidence. In other words, telegram is an easy way to access colleagues and ask them about their clinical questions. *"In addition to books, I use telegram channels as a resource for evidence. I can consult with my colleagues."* a participant said.

The second kind of resources are real ones that can be divided into 4 subgroups containing the experiences of colleagues, acquired knowledge, therapist's experience, and obtained knowledge from patients. Acquired knowledge is obtained over time during their university education and after graduation through the study of reference books, participating in classes, workshops, and seminars. This way the therapists can continue learning throughout their lives. In fact, the goal of having a university education is developing a creative and critical way of thinking, and improving therapists' abilities in life-long learning [15].

One of the participants said that she used reference books as evidence and stated: *"I had not read the reference books but I have now started reading them for each patient. For example, I looked up evidence for the treatment of knee arthrosis. Kessler is a good and valid reference book in physiotherapy"*. A physiotherapist holding a BSc. degree stated: *"I came across a question about Erb palsy. I wanted to become familiar with the latest treatment methods used in Erb palsy. I found a new version of a book about pediatric rehabilitation and read some parts of it."*

A therapist's experiences are the most accessible resource. Most of the contributors mentioned the use of their own experiences in treating routine cases. They believed that with increased experience in the treatment of certain types of diseases, the need to use other resources of evidence reduces. For example, one of the contributors said: *"There is not enough time to find an evidence to treat a patient who has OA according to her x-ray and history. I treat this kind of patient according to my experience and do not spend time exploring other, more novel, methods of treatment."*

Sometimes there is a question in a therapist's mind that is not within the frame-work of their experiences. The participants considered that the most comfortable and accessible way of finding evidence is using the experience of colleagues and professors. For example, a physiotherapist working in a public hospital stated: *"A hospital advantage is that therapists work together. So they share their experiences with each other"*. A participant with 10 years of experience in clinical practice said: *"I*

*have ten years of experience but I may not have seen a particular kind of patient yet… in such a case, I ask my professor or colleagues if they have ever come across a similar case… . In addition to this, I consult with the physicians working at the hospital."*

Some of the participants mentioned the importance of patients' preferences and their cultural, environmental, and social position in using the evidence. For example, a participant said: *"I have gained experience in treating patients during these 10 years…I combined my experience with the patient's request and her comfort. Although, the evidence and my experience would say that ice is useful, there still may be a patient who is not comfortable with ice, so, I do not use the ice…"*

## 4. Discussion

Most of the participants were somewhat familiar with the general definition of EBP. However, a variety of definitions of EBP have been proposed. Dyssart [23] and Sackett [6] defined EBP as the combination of research, clinical expertise, and the patient's choice. Most participants in this study described EBP as treating the patients with new methods using results obtained from articles. They believed that the articles are the results of the researchers' experiments and experiences. A few of the contributors in first group who were familiar with EBP at university, mentioned the patients' choices as their resource of evidence.

Mcklusky carried out a study on 114 occupational therapists. He showed that holding workshops about EBP would lead to improvement in physiotherapists' knowledge and skills in using evidence in clinical practice [16]. A few physiotherapists in first group pointed out the importance of articles, critical appraisal, and skills to find and use high quality evidence. Even the participants who claimed that they implement evidence in clinical practice, noted that they are unable to appraise the results of the studies. Rosenberg has described 4 steps for EBP, including making an appropriate clinical question, finding a relevant evidence, critical appraisal of the results obtained from evidence, and implementing these results in clinical practice [14]. Lack of critical appraisal skills has been mentioned in some studies as one of the barriers for using evidence in clinical practice [24]. Rosenberg [14] described a gap between theoretical science and clinical practice in EBP. He said that this gap would lead to ineffective clinical decision making and additional health care costs. Some study participants pointed out this gap and asked for some changes in the educational programs of universities. Clinical instructors should become role models for students and treat patients according to the evidence.

Actually, therapists educated in EBP were familiar with all parts of this definition. They are more confident about their skills in finding and appraising the evidence. The second group was only familiar with the general definition of EBP. Most of them did not mentioned the steps of EBP. All of these results show the importance of education about EBP in physiotherapy. There should be plans made in advance to improve the familiarity of all graduate physiotherapists with the meaning of EBP and how it should be used and implemented into clinical practice.

Iranian graduate physiotherapists mentioned 4 resources for obtaining evidence, including experiences of colleagues, acquired knowledge, therapist's experience, and obtained knowledge of patients. Malone, in a study published in 2004, divided the evidence into 4 groups: knowledge from research evidence, from clinical experience, from patients, and obtained from the work environment [25]. Furthermore, he stated: "research evidence has assumed priority over other sources of evidence in the delivery of evidence-based health care. Evidence rarely achieves absolute certainty and may be changed as new research emerges. Research evidence, although crucial to improving patient care, may not be on its own guide the practitioners' decision-making."

The study participants have mentioned the findings from research as the most crucial part of evidence. They obtained this kind of knowledge from books and databases on the internet. Malone defined the clinical experience as the second resource of evidence. An individual practitioner's experience and knowledge can be considered as a credible source of evidence, if it is explicated, analyzed, and critiqued.

The therapists who participated in the study said that clinical experience should have a scientific base and be analyzed to become a valuable source of evidence. They noted that most of the time they treat their routine case of patients based on their own experience. In his study, Schreiber stated that personal experience is often characterized as being anecdotal evidence which cannot be generalized and is a poor basis for scientific decision-making [11].

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## Conflict of Interest

The authors declared no conflicts of interest.

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