



Research article

Evidence based physiotherapy practice in cardiopulmonary subdiscipline: A survey in United Arab Emirates



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ABSTRACT

Background: Evidence based practice (EBP) is widely used by cardiopulmonary physical therapists worldwide. Therefore, it is important to identify whether the therapists have the required knowledge, skills and resources in order to deliver the best evidence-based practice.

Objectives: The main objective of this cross-sectional study is to analyse the self-reported characteristics of behaviour, knowledge, skills and resources, opinion and barriers related to evidence-based practice among cardiopulmonary physical therapists of United Arab Emirates (UAE).

Methods: An electronic questionnaire was circulated among 60 licensed cardiopulmonary physical therapists, of either gender, practicing in UAE with a minimum experience of 1 year via e-mail. The response was further subjected to descriptive analysis.

Results: The rate of response was 55% (33/60). The physical therapists of cardiopulmonary discipline reported that they understand the term Evidence Based Practice and frequently update themselves through scientific papers obtained via accessing various databases. Respondents also believe that the exposure in undergraduate or post-graduate course was not sufficient. However, they were also satisfied with amount of discussions taking place regarding EBP at their work place. The barriers commonly reported were difficulty in obtaining full-text papers, lack of time and lack of evidence-based training.

Conclusion: Thus, concluding that physical therapists from UAE who practiced in cardiopulmonary subdiscipline believe that they have knowledge and skills to use evidence-based practice. Although, they have favourable opinions regarding its application and they still encounter difficulties in implementing it successfully.

1. Introduction

Evidence-based practice (EBP) is defined as the use of the finest clinical research to clinical practice that incorporates the best evidence from well-designed studies, with regard to the care of individual patients [1, 2]. It is considered as an important and a valuable step in the medical profession. Five steps are involved in the decision-making process: (a) formation of a clinical question, (b) an efficient database search to answer the clinical question, (c) critical assessment should have valid evidence, (d) evidence finding should be applied in the clinical practice, (e) effects of evidence application in the clinical practice. The implementation of these five steps is necessary to deliver high quality EBP [1, 3, 4].

The main advantages of this concept is: it enables the consistent care within the professional boundaries along with helping to work in a transparent way with less scope for misinterpretation. It also aids in giving a good quality client focused care. All of this helps the clinician to involve genuinely in the decision-making process about patient care, with clarifications regarding the indications and contraindications [1, 5, 6].

Physical therapy is an extremely important and emerging field in the health care profession, concerning with human functions, movements and maximising physical potential with one's own body movements. It helps in improving quality of life in the forms of – promotion, prevention, intervention or rehabilitation [7]. Clinical research in physical therapy is essential to generate new knowledge to help validate our therapies. The

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evaluation of research findings is vital to help make appropriate and benefitting clinical decision which would comply with the principles of EBP. Statistical significance testing has dominated the way researchers typically report their results and evaluate their significance [8].

Therefore, a separate concept of Evidence Based Physical Therapy Practice (EBPT) has been developing in order to support the clinical research and findings with regards to patient treatment. It is defined as: ‘an open and thoughtful clinical decision-making about the physical therapy management of a patient/client’s preferences and values, and that further considers the larger social context in which physical therapy services are provided, to optimize patient/client outcomes and quality of life’ [9].

Physical therapy comprises of many specialities-including neuromuscular, musculoskeletal and cardiopulmonary physical therapy. Cardiopulmonary physical therapy was one of the first to be recognized as a clinical specialty within physical therapy in 1978 [10]. It is primarily concerned with the management of physical and functional impairment, activity limitations and participation restrictions resulting from impairment of body functions. It also includes treating structural impairments of the cardiovascular and the pulmonary system as a result of a disease, injury, or other conditions. The role of physiotherapy interventions in the management of acute and chronic cardiac and respiratory diseases is vital. A core component of these interventions is exercise prescription and behaviour change [11].

Despite its high significance, the practice of EBP still remains low among the practicing physiotherapists [12]. There is an immense knowledge gap regarding the use of EBP among various sub-elective fields of physical therapy. It is essential to find out about knowledge, skills and barriers faced by cardiopulmonary physical therapists with respect to EBP. It will help in improving the quality of treatment provided to patients/clients. Recently, a systematic review identified knowledge, skills, opinions and barriers faced by physical therapists in relation to EBP. The review included 12 studies from nine different countries covering a wide range of ethnicity [3]. However, all those studies investigated the perspectives of therapists in general and not according to specialities. Cardiopulmonary physiotherapy also includes treating preoperative and postoperative cases. Considering that this particular sub discipline has significant growth potential, it is important to investigate the characteristics of therapist in this area with regard to Evidence-Based Practice. This survey would help the improve the quality of therapy by over-coming all the glitches between therapists and the use of latest knowledge and research in their treatment protocol to maximize the benefits.

2. Methods

2.1. Study design

The present study is a cross-sectional descriptive study design. It was commenced after the approval given by the Research Ethics Committee of the University of Sharjah. Participants electronically read and accepted the information consent form before answering the questionnaire.

2.2. Participants

The study targeted a convenience sample of physiotherapists in the cardiopulmonary subdiscipline among United Arab Emirates. The questionnaire was distributed among the Physiotherapists who had a practicing license in the United Arab Emirates with minimum 1 year of experience in the cardiopulmonary field via emails. The study’s sample size was estimated to 60 participants as there aren’t many physical therapists trained in cardiopulmonary physiotherapy or practicing it in United Arab Emirates.

2.3. Sample size calculation

The sample size included in this study is small as there are only few physiotherapists practicing in this discipline in UAE. We only included

physiotherapists who were working as a cardiopulmonary physiotherapist at the time of the survey and who had at least one year experience in this role. To determine the total number of cardiopulmonary physiotherapists currently practicing, a list of both private and government hospitals was obtained from the database of the Emirates physiotherapy society. 60 hospitals were contacted, of which 36 responded. From the hospitals that responded, 60 physiotherapists were identified. The response rate was approximately 55%, as only 33 physiotherapists responded to the questionnaire (33/60). This point-that the sample size in the study was small-has been included in the limitations of the study.

2.4. Data collection tool

The questionnaire has been tested previously, and is taken from a Brazilian research article, with permission of the author [1]. The questionnaire was divided into the following domains: (1) consent form (1 item); (2) demographic details and educational and professional experience (7 items); (3) skills in reading English texts (1 item); and (4) characteristics related to EBP — behaviour (5 items), knowledge (9 items), skills and resources (9 items), opinion (5 items), and barriers (15 items). The questionnaire was developed with response options in a five Likert scale between one and five (1 = strongly disagree, 2 = partially disagree, 3 = neutral, 4 = partially agree, and 5 = strongly agree). The full questionnaire is described in Appendix 1.

2.5. Data collection procedure

The study protocol was submitted to Institutional Ethical committee, University of Sharjah. On approval the questionnaire was distributed among the Physiotherapists have a practising licence in the United Arab Emirates with at least 1 year of experience in the cardiopulmonary field through emails. A hyperlink was sent to the participants with the informed consent form and subjects consenting to participate in the study were further given access to the questionnaire. To have a greater response rate, participants were given a period of 2 weeks to fill the questionnaire and send it back starting from the date of mailing. Those who did not respond, were sent a gentle reminder at the half of period via emails and phone messages. This study was conducted between January 2021–February 2021.

2.6. Data analysis

The data was entered in an excel sheet and was then analysed using descriptive statistics, and stated as absolute values, percentages and frequencies. Only the complete questionnaires were considered in the analysis. The analysis was conducted using the IBM SPSS software (version 22.0 for Windows, Version 24.0. Armonk, NY: IBM Corp.).

3. Results

The collective response rate was 55% (33/60). Due to limited number of cardiopulmonary physical therapist practicing in UAE, only 33 answers were obtained. The demographic characteristics of all the participants has been elaborated in Table 1. Total number of participants working as physical therapists were 90.9%. The number of female participants (81.8%) were more as compared to males (18.2%). Table 2 describes the self-reported behavioural characteristics related to EBP. About 45.5% of the participants update themselves via scientific papers. They use Google scholar (48.5%) and PubMed (45.5%) for the same, most frequently used being PubMed (54.5%), with majority of them using the database at least 1 to 3 times a week (48.5%). These databases are accessed more frequently at home (63.6%).

Table 3 elaborates on the self-reported characteristics of knowledge, skills and resources, opinion and barriers related to EBP. Majority of the partakers stated that they know the meaning of the term EBP (57.5% strongly agree), The participants strongly disagree about the experience

in EBP during undergraduate or postgraduate degree (24.2%) and about not understanding the core elements of EBP (36.3%). This table ends with discussing about the barriers related to EBP. The participants discuss about – lack of quality scientific paper (48.5%), lack of time (27.3%) and lack of evidence-based training (neutral 33.4) and lack of interest in research (partially agree 30.3%) to be the most common barriers.

4. Discussion

The present study is the first of its kind to assess the knowledge, skills opinions and barriers related to evidence-based practice faced by physical therapists practicing in UAE. Furthermore, this is also the first study to consider assessing a speciality in physical therapy which is the cardiopulmonary subdiscipline. The survey uses an exceptionally designed questionnaire which covers all the important aspects required to analyse the level of availability and comprehension of EBP. Data interpretation suggests that partakers regularly update themselves through scientific articles. They use PubMed frequently followed by google scholar at least 1–3 times a week. They find themselves more comfortable accessing these articles at home. Therapists are confident about their understanding of the term evidence-based practice. However, they feel the knowledge reading the same during their graduation or post-graduation course

Table 1. Demographic characteristics of respondents (n = 33).

Characteristics	n (%)
Are you currently working as a physical therapist?	
Yes	30 (90.9%)
No	3 (9.1%)
Gender	
Male	6 (18.2%)
Female	27 (81.8%)
When did you complete your undergraduate degree?	
Less than 5 years	13 (39.4%)
5–9 years ago	8 (24.2%)
10–14 years ago	2 (6.1%)
15–19 years ago	4 (12.1%)
20–24 years ago	6 (18.2%)
What is your highest level of education?	
Undergraduate degree	11 (33.4%)
Postgraduate degree (coursework)	8 (24.2%)
Postgraduate degree (master of research)	10 (30.3%)
Postgraduate degree (PhD)	3 (9.1%)
Post doctorate degree	1 (3%)
What is the origin of the university from your undergraduate degree?	9 (27.3%)
Public	24 (72.7%)
Private	
Currently working on	
Assisting patients	
Teaching	24 (72.7%)
Researching	4 (12.1%)
	5 (15.2%)
What is the main area of interest in cardiopulmonary physiotherapy?	6 (18.2%)
Intensive Care Unit	4 (12.1%)
Cardio Rehabilitation	8 (24.2%)
Pulmonary Rehabilitation	13 (39.4%)
Fitness Rehabilitation	2 (6.1%)
Burn Rehabilitation	
What sector you work in?	
Public	18 (54.5%)
Private	5 (15.2%)
Both	6 (18.2%)
Self employed	4 (12.1%)
Do you have previous experience with teaching?	
Yes	8 (24.2%)
No	25 (75.8%)
Do you have previous experience with doing research?	
Yes	24 (72.7%)
No	9 (27.3%)

Table 2. Self-reported characteristics related to EBP – behaviour.

	n (%)	
What are the resources that you use to get updated information related to your patient's treatment?		
Courses	8 (24.2%)	
Congress, conferences, lectures	8 (24.2%)	
Study groups	-	
Books	1 (3%)	
Scientific articles	15 (45.5%)	
Informal articles (e.g., blogs)	1 (3%)	
What databases have you ever used?	Yes	No
PubMed	15 (45.5)	3 (9.1)
Cochrane	11 (33.4)	9 (27.2)
Scielo	3 (9.1)	10 (30.3)
Lilacs	6 (18.1)	8 (24.2)
PEdro	12 (36.3)	5 (15.2)
Google scholar	16 (48.5)	1 (3.0)
I have never used databases	-	5 (15.2)
What databases do you use most often?	Yes	No
Bireme	2 (6.1)	3 (9.1)
Cochrane	18 (54.5)	2 (6.1)
Scielo	10 (30.3)	3 (9.1)
Lilacs	2 (6.1)	3 (9.1)
PEdro	3 (9.1)	3 (9.1)
Google scholar	10 (30.3)	3 (9.1)
I have never used databases	14 (42.4)	1 (3.0)
	-	4 (12.1)
What is the frequency of the use of this (these) database(s) in the last six months?	3 (9.1)	
Every day	16 (48.5)	
1 to 3 times a week	5 (15.2)	
1 to 3 times a month	3 (9.1)	
1 time every 2 months	3 (9.1)	
Very rarely	3 (9.1)	
I do not use databases		
What places do you do the search in the databases?	21 (63.6)	
At home	5 (15.2)	
Work	3 (9.1)	
University	4 (12.1)	
I do not use databases		

was insufficient. The respondents also feel that it is important to ask their patients regarding their preferences in treatment options and consider incorporating them in the decision-making process. Major barriers reported were about the difficulty in obtaining full-text papers, lack of time, lack of EBP training, lack of evidence-based training and lack of interest in research.

A similar survey was conducted by Claudino R et al., in Brazil including physical therapists from the dermatology subdiscipline. A larger number of 101 therapists participated in the survey. The results of this study corroborated with the findings of our study, with the therapists having similar thoughts about knowledge, skills and barriers [1]. A systematic review by Mota da Silva T et al. [3], on the similar topic included 12 studies from various countries like – Germany [13], two studies from Sweden [14, 15], France [16], Philippines [17], two from Australia [18, 19], USA [20], Brazil [21], two studies from Canada [22, 23] and one from Netherlands [24]. All the characteristics like knowledge, skills and behaviour, opinions and barriers were reported and assessed. Few studies did not report the barriers, others reported lack of time to be the biggest barrier, followed by lack of interest in research and limited or no access to scientific literature. Japan [25] and Columbia [26] also conducted the same study among their practicing physical therapist. They further added the lack of applicability of findings into clinical practice as an important barrier. Another study in Italy [27] among 1289 physical therapists yielded similar results.

A cross-sectional study [28] and a cross sectional survey [29] was conducted among physical therapists practicing in Saudi Arabia. The study consisted of 376 practicing therapists answering a 14-point questionnaire containing similar components to all the other questionnaires

Table 3. Self-reported characteristics related to EBP- knowledge, skills and resources, opinion and barriers.

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree
Knowledge					
I know the meaning of the term EBP.	12.1	6.1	12.1	12.1	57.5
I had no experience with EBP during my undergraduate or postgraduate course(s).	45.4	21.2	21.2	6.1	6.1
The information about EBP during my undergraduate degree was sufficient.	24.2	21.2	24.2	24.2	6.1
I know clearly how to apply the research findings into clinical practice.	18.1	9.1	24.2	9.1	39.4
I understand different types of studies (study designs).	15.2	9.1	18.1	18.1	39.4
I do not understand statistical data.	15.2	21.2	33.4	18.1	12.1
I believe I have sufficient knowledge to use EBP.	6.1	9.1	27.2	21.2	36.4
I am not interested in learning more about EBP.	63.6	21.2	9.1	6.1	-
Skills and resources					
I am not able to conduct searches in online databases.	33.4	24.2	33.4	-	9.1
I am able to critically assess scientific papers.	15.2	15.2	27.2	21.2	21.2
I often access online database.	12.1	3.0	36.4	12.1	36.4
I am not motivated to use EBP in my daily practice.	36.4	33.4	18.1	9.1	3.0
I have computer resources and Internet access at my workplace that facilitates the use of EBP.	12.1	6.1	15.2	21.2	45.4
I do not have discussions about EBP in my workplace.	21.2	30.3	39.3	-	9.1
I ask my patients about their preferences and I consider them in my decision-making.	6.1	9.1	36.4	15.2	33.3
I inform my patients of their treatment options and consider their choices in the decision-making process.	9.1	6.1	42.4	24.2	18.1
I do not use the best scientific evidence in my clinical practice.	45.4	30.3	24.2	-	-
Opinion					
EBP is important to my clinical practice.	9.1	6.1	15.2	24.2	45.4
I do not believe that EBP improves patient care in physical therapy.	54.5	33.3	9.1	-	3.1
Much of my decision-making regarding the treatment of my patients incorporates EBP.	6.1	3.1	42.4	24.2	24.2
An expert's opinion in my field is the most important factor in my decision-making process.	9.1	12.1	36.3	12.1	30.3
The use of the best scientific evidence does not improve the quality of health services.	48.5	21.2	21.2	-	9.1
Barriers					
Language of scientific papers.	12.1	12.1	51.5	12.1	12.1
Lack of quality of scientific papers.	6.1	21.2	48.5	12.1	12.1
Difficulty to obtain full-text papers.	6.1	6.1	27.2	21.2	39.4
Lack of time.	6.1	18.2	24.2	27.3	24.2
Difficulty to understand statistics.	9.1	15.2	36.3	21.2	18.1
Difficulty to understand the results of the study.	12.1	27.2	42.4	12.1	6.1
Difficulty to explain the evidence to the patient.	12.1	18.2	39.3	18.2	12.1
Applicability of research findings into clinical practice.	12.1	15.2	42.4	9.1	21.2
Lack of evidence-based training.	3.1	18.2	18.2	36.3	24.2
Lack of knowledge about basics of research.	12.1	24.2	21.2	27.3	15.2
Difficulty to critically assess the study quality.	9.1	18.2	39.3	15.2	18.2
Lack of interest in research.	24.2	21.2	18.2	30.3	6.1
Lack of EBP training.	18.2	15.1	33.4	24.2	9.1
Evidence-based practice disregards the patients' preferences.	9.1	9.1	57.6	12.1	12.1
Using evidence-based practice may represent higher cost.	12.1	24.2	45.5	18.1	-
Unfamiliarity of using online databases.	30.3	24.2	27.2	15.1	3.1

Variables expressed in percentage (%).

used in the above studies. This study concluded that there is a wide gap in terms of understanding and applying EBP to clinical practice. The addition of the subject to the undergraduate and graduate curriculum will prove to be extremely beneficial. The survey however was with a smaller group of 64 therapists answering a 28-item questionnaire on similar points. The results suggested that, even though there is a positive attitude for EBP, it wasn't adequately used or applied in clinical practice. These finding can help re-design the curriculum for students learning in the field of physical therapy.

A very recent study, conducted among the physical therapists working in UAE, to again understand the barriers, difficulties, attitude and the availability of knowledge regarding this topic. The did find a correlation between attitude, knowledge and the perception of barriers. It was also found that researchers preferred to use their own previous experience with regards to treatment, rather than discussing with peers or searching evidence about it. Lack of research knowledge and skills were one of the biggest barriers. However, this study did not assess the physical therapists of any particular field or subsdiscipline [12].

A very small number of physical therapists in UAE practice in the field of cardiopulmonary physical therapy. Only a few of the licensed therapists are well trained and are pursuing this subsdiscipline. EBP is a very crucial part of day-to-day practices. It helps in implementing new

treatment methods for the betterment of the patient. It is also extremely important to discuss the treatment plan with patients as their preferences and choices must be considered in making the best decision. EBP can also help in combining the gold standard methods of treatment as well as the newer techniques for faster recovery and maximizing its benefits.

It is extremely important to understand the level of knowledge, opinions and skills of therapists related to EBP. It will help in the betterment of the health care provided to the patients/clients. On the other side, knowing about the barriers faced by them will help the management as well as the education system to work on the issues and find solutions to them. Working out the difficulties is a crucial part of facilitating a smooth work and treatment environment.

Cardiopulmonary physical therapy is an emerging field, which requires constant updating of literature with the do's and don'ts of treatment. Earlier, the primary aim was only to clear the airway in all the surgical, respiratory and critical care settings. Over the past decade, the focus has been on an all-rounder rehabilitation program-focussing on increasing physical activity, strengthening respiratory muscles, and promoting self-management [30]. Evidence-based practice is important as it helps update the literature, encourages to use newer techniques which might be more beneficial than the novel one's. The most recent example of EBP in this subsdiscipline is the treatment of COVID-19. A

scoping review by Siddiq MA et.al, showed all the treatment protocols followed by physiotherapists all over the world. All the literature helped others to understand the beneficial as well as harmful effects of a particular treatment [31]. This further assisted them to make an informed decision about the treatment. Practicing EBP has now helped therapists to form a proper protocol and guidelines regarding the line of treatment. Therefore, it is important to promote EBP among various subdisciplines as well practicing in different countries. It will also help to frame universal guidelines for the physical therapists practicing evidence-based practice.

We conclude that Evidence Based Practice needs more attention in UAE among the cardiopulmonary physical therapist. The exposure through the curriculum in the undergraduate and post-graduate course can be increased for benefits. More use of this concept needs to be encouraged in day-to-day practices in the clinics. The most common barriers of lack of internet or accessibility to papers must be dealt at the earliest in order to make the availability easier.

5. Limitations

The sample size collected was small, as there aren't many cardiopulmonary physical therapists working with an experience of more than a year. The aim and objectives of the study did not find any correlation between the various sub-components of the questionnaire. Also, the pandemic situation made it difficult to ask these questions in person. Potential bias could be either missing data, or multiple selection of answers, which was thoroughly checked before analysis.

Declarations

Author contribution statement

Gopala Krishna Alaparthi: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Kalyana Chakravarthy Bairapareddy: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

Fatma A. Hegazy: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

Manjiri Suhas Kulkarni: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Khuloud Saif, Fakhra Ali, Raya Saeed, Asma Mohammed, Ghadeer Fahad, Sara Atef Ali: Conceived and designed the experiments; Performed the experiments; Wrote the paper.

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Data availability statement

Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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