

Embedding Evidence-Based Practice in Teaching-Learning Strategies in Undergraduate Physiotherapy Clinical Training in Abu Dhabi: Clinical Educators' Perspective

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Abstract

Background: Evidence-based practice (EBP) is an essential attribute in the healthcare setting. Prior to conducting this study, there was a lack of contextualized information as to how introduction and enhancement of EBP among physiotherapy students are carried over into undergraduate clinical training.

Purpose: The aim of this study was to understand teaching-learning strategies that enhance physiotherapy undergraduates' evidence-based practice during clinical training from the perspective of clinical educators.

Methods: A qualitative approach was used which involved key-informant in-depth interviews with physiotherapy clinical educators of physiotherapy students in Abu Dhabi (n=12). Clinical educator participants are physiotherapy clinicians in private hospitals and rehabilitation centres in Abu Dhabi. The audio-recorded interviews were transcribed and underwent thematic analysis using NVivo 12.

Results: Thematic analysis revealed that clinical educators recognized seven strategies aimed at enhancing students' evidence-based practice during clinical placement as: (1) case presentation, (2) problem-based learning, (3) skills demonstration, (4) shadowing, (5) following patient's progress, (6) exposure to a variety of patient cases, and (7) exposure to different clinical educators.

Conclusion: Clinical educators of physiotherapy students in Abu Dhabi employ a variety of teaching-learning strategies that enhance the adoption of an evidence-based physiotherapy practice by students during undergraduate clinical training.

Keywords physiotherapy, clinical education, evidence-based practice

1. Introduction

Evidence-based practice is the use of available research obtained through a systematic search and application of evidence as guide to clinical decision making in the care of patients (Dawes et al. 2005; Hurley, Denegar & Hertel 2011; Dusin et al. 2023). It is the use of research to inform one's clinical practice as compared to the traditional practice that is based on clinical experience and expertise alone (Bridges, Bierema & Valentine 2007; Sabus 2008; Owusu et al. 2023). A research-informed practice has become an essential professional attribute in healthcare (Newman 2013; Sundelin 2020; Owusu et al. 2023). According to the policy statement of the World Confederation for Physical Therapy (WCPT), physiotherapists should be equipped with knowledge and skills for EBP ("WCPT Policy Statement: Evidence-based practice" 2019), a policy that was also reflected in their physiotherapy education framework (World Physiotherapy 2021). According to the Sicily Statement on EBP, upon graduation of health care practitioners, they must possess the ability to "search, appraise and apply new knowledge" into their clinical practice and be life-long learners in order to adapt to future career changes (Dawes et al. 2005). Physiotherapists must be capable of utilizing EBP within their day-to-day practice (Bridges, Bierema & Valentine 2007). Research shows that physiotherapy is increasingly oriented to evidence-based practice at both the national and international levels (Sundelin 2020).

Many countries are either on their way to establishing or has already established EBP as

part of their entry-level requirements such as the United States of America (USA) ("CAPTE Evaluative Criteria PT Programs" 2014), Australia (Long et al. 2011), and Sweden (Nilsagård & Lohse 2010) to name a few. This entry-level requirement was further elaborated by the USA through the vision statement of the American Physical Therapy Association ("Vision Statement for the Physical Therapy Profession and Guiding Principles to Achieve the Vision" 2019). The APTA recognizes EBP as one of the pillars of physiotherapy practice, with the expectation that physiotherapists contribute to research and use research to inform their practice (Newman 2013; Owusu et al. 2023). In United Arab Emirates (UAE), there is still a need to strengthen its alignment into the overall educational framework (AlKetbi et al. 2021).

With EBP becoming an entry-level professional requirement, it is advocated that education and training in EBP should start at the earliest possible time and should be integrated throughout the undergraduate program (Glasziou, Burls & Gilbert 2008).

Formal education or training in EBP provides the requisite knowledge and to some extent some skills but will not be enough for skills like data interpretation, statistical analysis, and analysis of validity of the study (Bozzolan et al. 2014). Similarly, a curriculum with research courses improves students' knowledge, skills, and attitude towards EBP (Hill et al. 2015). However, attending research courses as part of the physiotherapy curriculum and completing clinical internship may not necessarily change students' views of EBP's

compatibility with physiotherapy practice and/or enhance their competency in EBP.

Clinical internship, on the other hand, improves students' view on the relevance of EBP to physiotherapy practice. Students' knowledge, skills and positive attitude were found to have improved throughout the curriculum, but clinical experience did not have any additional effect to these constructs (Hill et al. 2015). What specific teaching-learning strategies would work then?

One of the noted teaching-learning strategies is the provision of a tailor-fitted presentation focused on presenting scientific evidence to back up treatment of conditions which was noted by physiotherapists as a strategy that increases their interest in EBP and their application of evidence into their day-to-day practice even three months after the presentation (Fruth et al. 2010). An EBP workshop utilising a variety of teaching-learning strategies (i.e., didactic presentations, group discussion and practical skills application) increased the use of research to support clinical decision making among physiotherapists, leading to high regard to EBP based on the improved patient care it provided (Cimoli 2012). A multi-component intervention program involving provision of printed and electronic guidelines, seminar, website, links, newsletter/email reminders, patient information leaflets and email and telephonic support significantly improved awareness of guidelines and awareness of where to access guidelines among physiotherapists who received the program compared to the control group (Bernhardsson et al. 2014). An interactive and clinically integrated training program provided significant increase in EBP

knowledge, skills, behaviour, and attitudes among physiotherapy clinical educators (Olsen et al. 2015). The training program included (1) workshops with a mixture of lecture and small-group activities, (2) five individual written assignments with reflections, (3) supervision and guidance via phone and/or email, and (4) a pass-or-fail oral examination demonstrating the application of the EBP steps to an actual case with a concurrent demonstration of how to supervise students through the same EBP process (Olsen et al. 2015). Another effective approach to teaching and learning in physiotherapy education is the blended learning intervention which shows clear evidence of improvement in students' knowledge, competencies, perceptions, and satisfaction (Marques-Sule et al. 2023).

Journal club membership improved actual knowledge, perceived knowledge, and attitudes of physiotherapists towards EBP (Lizarondo et al. 2012). After sessions of facilitated discussion and self-help kits were provided by an innovative structured journal club called International Care for Allied Health Evidence (iCAHE), significant improvements to actual and perceived knowledge of EBP were seen (Lizarondo et al. 2012). Another strategy is by critical reflection using Mezirow's transformative learning theory (Owen 2016). Through critical reflection, it was established that the process of reflection widened the author's appreciation and awareness towards EBP combined with sound clinical judgment in care of dementia patients. Relying on good quality research

for planning patient care provides empowerment in further implementing evidence-based physiotherapy practice (Owen 2016; Dalley-Hewer et al. 2022). Collegiate discourses, whether informal (day-to-day discussions with colleagues) or formal (meetings), are also a significant educational strategy within the workplace. Physiotherapists reported that they usually consult their colleagues for second opinion regarding a certain physiotherapy intervention (Dannapfel, Peolsson & Nilsen 2013). A theory-informed instructor's development workshop created for orthopaedic manual physiotherapy instructors with the purpose of promoting EBP implementation into the teaching pedagogy of the instructors was well-received indicating high satisfaction towards the impact of the workshop (Levesque & Yeung 2015). From a systematic review, didactic sessions, interactive sessions, use of printed materials, discussion & feedback, reminders, role-play, online support, opinion leaders and peer assessment are some of the knowledge translation strategies toward EBP (Stander, Grimmer & Brink 2018).

An intensive EBP training programme provided to physiotherapy post-graduate students resulted into improved intention to access and use evidence by at least once per week right after the training program, indicating systematic reviews, clinical practice guidelines, randomized controlled trials and case studies as main sources of evidence for their future clinical practice. Long-term follow up showed positive responses towards EBP implementation with the same order of preference to systematic reviews, clinical guidelines, randomised controlled trials and case studies as the main sources of evidence

used for a research-informed clinical practice. There was no association between use of evidence to time since graduation (Perraton et al. 2016).

In undergraduate and post-graduate physiotherapy programs, formal courses regarding key principles of EBP were provided. Undergraduates exhibited significant changes and larger effect size in EBP actual knowledge and practice compared to post-graduates after undergoing a theory course regarding key principles of EBP and a clinical course with integrated EBP. The larger improvement among undergraduates may be attributed to the fact that they have had lesser formal exposure to EBP as compared to the post-graduate students. Moreover, undergraduate students were required to undergo a formal assessment examining their EBP knowledge which could have stimulated their learning, whereas post-graduate students implemented EBP as a learning opportunity more than a required assessment (Long et al. 2011).

Interactive courses within the undergraduate combined with authentic assessment tasks such as compilation of patient files, short EBP format of studies, and Journal Club showed that students valued EBP more and students got equipped with requisite knowledge. Moreover, integrating EBP within clinical courses caused significant change among undergraduate physiotherapy students regarding actual knowledge and practice (Bozzolan et al. 2014).

Summing up recent literature, it shows that most teaching-learning strategies toward EBP

include a mix of lecture presentations, problem-based learning, group discussions & feedback, practical skills application, seminar, interactive sessions, reminders, role-play, online support, peer assessment, and journal clubs. Prior to conducting this study, there was a lack of contextualized information as to how EBP is carried over into undergraduate clinical training in Abu Dhabi, where physiotherapy students undergo clinical training under the supervision of clinical educators who are licensed physiotherapists. With a multitude of teaching-learning strategies that can be used to embed EBP knowledge and skills, the question worth asking is: what strategies in particular do clinical educators in Abu Dhabi utilize to bolster physiotherapy students' application of evidence into practice during undergraduate clinical training? Recognizing this knowledge gap led to the purpose of this study which was to understand teaching-learning strategies that enhance physiotherapy undergraduates' evidence-based practice during clinical training from the perspective of clinical educators.

2. Methods

This study was conducted in Abu Dhabi, United Arab Emirates shortly before the outbreak of COVID-19 pandemic. It was based on clinical training for undergraduate physiotherapy students conducted in affiliate hospitals and clinics of the higher education institution providing the degree of physiotherapy. The role of clinical educators to oversee the clinical training of students is assigned to licensed physiotherapists. Clinical

educator to student ratio for the clinical training is 1:1.

2.1 Study Design

A qualitative research approach was adopted mainly using interviews to generate the research data. The purpose of using the qualitative interviews was to gain in-depth understanding of the teaching-learning activities employed by clinical educators to inculcate evidence-based practice among their students during clinical training. The qualitative interviews were also used to explore further on how these activities transpired in their daily clinical training. A qualitative method was more appropriate for this study, as compared to quantitative approach, to capture the clinical educators' viewpoints and experiences in an in-depth manner. Moreover, a qualitative approach allows for further exploration and/or explanation of answers to extensively address the research question.

2.2 Sample

Purposive sampling was used to recruit clinical educators to participate in a one-on-one interview. One-on-one interviews are best for participants who are articulate with ideas and can share information about a phenomenon through verbal expression without hesitation to speak. With varying roles within an organisation, some professionals may be more informed about a certain aspect of the organisation's day-to-day activities. These people are known as key informants attributing to the premise that they possess useful

resources and offer invaluable knowledge and insight to the researcher (Fraenkel, Wallen & Hyun 2012).

Gatekeeper permission was sought prior to recruiting clinical educators who were approached through the physiotherapy managers of private hospitals and clinics where physiotherapy students receive undergraduate clinical training. A copy of the participant information sheet and consent form were sent to the gatekeepers in advance. This ensured that they were aware that research participation is voluntary, and that confidentiality is guaranteed to all participants. Physiotherapy managers from seven different institutions responded and nominated one to three clinical educators from their team, yielding a total of n=12 licensed physiotherapists who agreed to participate in the study. Through purposive sampling and with the help of the physiotherapy managers, clinical educators who are considered key informants for the research question were identified. The participants were not related to the researchers in any way. Interview sessions were booked strategically to avoid conflict with patient schedule.

2.3 Instrumentation

To gather an in-depth insight into the research problem, an interview guide was prepared containing semi-structured and open-ended questions starting with: *“What are your strategies to embed EBP in the students’ undergraduate clinical practice?”* followed by *“How do you positively enhance this in your students?”*. Probing questions such as

“*Could you please expound on that?*” or “*Could you tell me more about it?*” were interjected in the interview whenever necessary.

2.4 Data Collection and Analysis

Interviews were conducted by the first author from April 2019 to June 2019 at the office of the clinical educator with only each participant and the interviewer present. Duration of each interview was kept under 30 minutes. No repeat interviews were conducted.

Interviews were audio-recorded and were later transcribed verbatim.

Data analysis was conducted following the procedures of thematic analysis as described by Braun and Clarke (2012). Using the computer-assisted qualitative data analysis software NVivo (version 12), data underwent six phases of thematic analysis starting with (1) *familiarisation*, wherein the audio-recorded interviews were listened to twice and the transcribed data read a number of times; (2) *coding*, wherein initial codes were generated at the semantic level to stay close to the participants’ expressed meaning; (3) *constructing potential themes*, which are based on the patterned responses of the clinical educators that answered the research question; (4) *review and revision of themes*, to ensure quality, coherence and meaningfulness; (5) *defining and naming of themes* based on three guidelines: themes should be informative, concise and catchy; and lastly (6) *writing the analysis* with extracts quoted from the interview responses of the clinical educators to support the researchers’ interpretation of data.

3. Results

Seven themes arose from the thematic analysis of the interview data of n=12 clinical educators involved in this study. These seven themes represent the teaching-learning strategies that the clinical educators used to enhance EBP during clinical training of undergraduate physiotherapy students: (1) case presentation, (2) problem-based learning, (3) skills demonstration, (4) shadowing, (5) following patient's progress, (6) exposure to a variety of patient cases, and (7) exposure to different clinical educators. Quotes lifted from the interview data are presented under pseudonyms to keep the anonymity of the clinical educators.

3.1 Case Presentation

Case presentation is the most commonly used strategy to facilitate an evidence-based practice during clinical placement of physiotherapy undergraduates. A recurring comment from the educators was, *'It's a good way of getting the students used to incorporating evidence-based practice actually into the treatment of patients'*. This is usually done on the last day of a month-long clinical placement. One educator adds, *'The presentations are the major prompter that we have to demonstrate [students'] awareness of clinical guidelines and evidence-based practice which the students present at the end of the placement'* (Luther). Students are required to present a chosen case from among the cases they have handled the entire clinical rotation and present it during the in-house meeting

with all clinical educators and physiotherapy clinicians as audience. Another educator elaborated, *'In the first couple of weeks, they would try and find an interesting case and then we ask them to go away and look at the latest evidence for it' (Fely)*. The student then manages the patient for 4 or 5 weeks of clinical placement, follow patient progress and discuss to all clinical educators and colleagues the assessment, management and outcome measures used backed up by evidence. One educator emphasized, *'That's where we get them to hone in and to show us they know how to do evidence-based practice and tell us the diagnosis, what they treated them and why they did that treatment so the evidence has to back up why they did it' (Emilia)*. This strategy was deemed very useful by the clinical educators in seeing the capacity of the students to use and apply research into their practice, especially for those students who were not forthcoming enough to volunteer information to their clinical educators.

3.2 Problem-Based Learning

For most of the clinical educators, the classic act of asking questions based on patient cases any time of the day is one of the most used facilitatory techniques for enhancing evidence-based practice among students. This somewhat resembles the case presentation done at the end of each clinical rotation but in an informal and on-the-spot question-and-answer kind of manner. Clinical educators do this by directly asking questions about how to manage the case at hand and the student's basis of choosing a

certain intervention. *“What evidence do you have that your choice of treatment is better than this choice of treatment?” (Fely).* If the student is unsure of the treatment options, the student is advised to look it up and is given ample time to come back with the answers the next time they are free to discuss, either within the same day or the next clinical day. *“Sometimes, you might ask a question and they don’t know the answer. So, I encourage them to go and look up and come back and tell me because I don’t know they know unless they tell me” (Emilia).* Clinical educators ensure to ask and note the sources of information where the students gather their answer to make the students reflect on the depth of their search and the quality of the paper from which they are basing their answers on. *“We would perhaps ask them what paper they have read, or where is it that they got this information from. And we see whether they are actually applying what they have read.” (Fely).* Furthermore, students are tasked to prepare for planned treatment sessions ahead of time. *“We have to plan their sessions so if [students] are going to be treating in a treatment session, they need to come the next day with the evidence of what they are going to do during that treatment session” (Rhada).*

3.3 Skills Demonstration

One way to translate EBP into hands-on application is through skills demonstration. This is usually done during times when patients do not show up. *“If we have time while we don’t have a patient, we would practice something” (Fely).* Clinical educators task the

students to demonstrate techniques of physiotherapy assessment and treatment.

“[Students] demonstrate how to do special tests, how to do the treatment, [apply] the splint and everything” (Bridgette). The skills demonstration of assessment and

therapeutic interventions were being done by the student onto the clinical educator or a colleague who acts as a patient for the time being. *“If we don’t have patients, we even have [colleague’s name] as a model and [the student] will practice on me” (Alona).*

Planning ahead of time also helps the student revise concepts and prepare for what to demonstrate in case a patient does not show up: *“I give them some plan about what we might do the next day so that they can do a little bit of reading or a little bit of preparation and then we’ll practice” (Fely).* Practicing through skills demonstration makes the students more prepared when the patient comes.

3.4 Shadowing

Shadowing is one of the most-practiced strategies in clinical education to ensure that students learn optimally from their clinical educators. Regardless of how many previous clinical placements the students have had prior to each rotation, the clinical educators’ first strategy into immersing the students during the first one or two weeks of their clinical placement is through shadowing. *“The student will be assigned with me, like, shadowing me and, I will supervise her from day 1 till they finish” (Alona).* Through shadowing, the students get to see their clinical educators in their element of assessing

and treating patients. This phase ensures that students know what is expected of them when it comes to patient management. *“If I was mobilizing maybe a shoulder, I would start it, and then the student is going to take over now and I want [her] to tell me if it feels the same, if it feels different” (Fely)*. Through shadowing, the students can observe their clinical educators’ individual approach to patient management. This opportunity widens their perspective on how they approach their future patients once they get full autonomy to practice as clinicians. *“I have to be comfortable with the student, to know her skill and then gradually, I will ask her to try to do the hands-on treatment to the patient and then eventually she will handle the patients with my close supervision” (Alona)*. Within the “shadowing phase” of the student with her clinical educator, the student also learns the things a clinician does outside patient management time such as consulting evidence and reading clinical guidelines prior to being entrusted with leading a physiotherapy session on their own with supervision.

3.5 Following Patient’s Progress

Following a patient’s progress for at least 4 weeks gives a student an opportunity to look into the effectivity of the treatment being given to the patient. *“We work out the timetable to give the students maximum exposure to follow same patients over the duration of their placement so they’re able to see the progression” (Luther)*. The actual application of assessment or treatment protocols from scientific findings is an effective strategy used by

clinical educators to enhance students' evidence uptake. *“By doing the multiple sessions, they have to give evidence of why they chose this treatment modality or treatment technique, and they have to support it with evidence from the literature” (Alona).*

Consulting research evidence and guidelines, student can therefore suggest continuing the same treatment if progress is consistent or modify the treatment protocol if the patient's progress is halted. This gives them an insight on how clinical decisions are made based on the recommendations in research studies.

3.6 Exposure to a Variety of Patient Cases

Exposure to a variety of patient cases, common or rare ones, compels students to do more research and reading. Nobody expects them to know all available physiotherapy treatment protocols but being exposed to multiple old or new cases keeps them up to their toes. *“We swap the timetables. So, there's a different set of patients each week” (Emilia).*

This again pushes them to be proactive in search, understanding and application of effective treatment plans based on findings in research. *“We have a timetable of which patients they see. We always allocate time to make sure that they have time to do research” (Rhada).*

3.7 Exposure to Different Clinical Educators

Exposing students to different clinical educators equals exposing them to different

clinical decision-making approaches. “*We take all available therapists and create a timetable. So, they’re not with me all the time.*” (Emilia). During clinical training, they meet a variety of clinical educators with different number of years of work experience and different personalities, who uses different sources of evidence and different methods in keeping themselves up to date with evidence. It is imperative for students to see these many varieties so that they can choose for themselves the most fitting approach based on what they have seen worked among their clinical educators.

4. Discussion

Based on the clinical educators’ perspective, EBP was embedded during clinical training of physiotherapy students using the following teaching-learning strategies: (1) case presentation, (2) problem-based learning, (3) skills demonstration, (4) shadowing, (5) following patient’s progress, (6) exposure to a variety of patient cases, and (7) exposure to different clinical educators.

The use of problem-based learning (Sackett et al. 2000) or case-study approach (Burnett 2005) or case-based scenarios (Heiss & Basso 2003) has been deemed as an effective approach to promote the use of research by students to address patient problems with current best practice according to scientific evidence. Problem-based learning or “learning by inquiry” is helpful in developing the habit of searching for current research evidence available (Sackett et al. 2000). Through the case-study approach, students

demonstrated better commitment in research and improved their attitudes towards it in the process (Burnett 2005). Heiss & Basso (2003) added that students showed increased confidence in reading and understanding research articles through case-based learning. Based on the premise that problem-based learning is “learning by inquiry”, it appears that four out of the seven teaching-learning strategies identified in the current study fall under the umbrella of problem-based learning, applied both formally and informally. Problem-based learning was applied formally through case presentation and application of evidence to patient cases.

Case presentation was deemed very useful by the clinical educators in seeing the capacity of the students to read and apply research into their practice, especially for those students who were not forthcoming enough to volunteer information to their clinical educators during the month-long clinical training. Clinical educators noted the sources of information where the students gathered their information to make them reflect on the depth of their search and the quality of the evidence from which they based their information on. Once a clinical educator sees that a student is competent enough to treat the patient on their own, they stand aside to observe the student manage the patient on their own. They look for signs of EBP application such as when students translate the research findings they have consulted and apply the evidence-based treatment onto the patient or deliver the informative education to the patient. Clinical educators make sure

that what the students read and what they do are the same. This is a very hands-on strategy as research findings are applied directly to the patient during clinical placement, which proves that problem-based learning is effective in promoting EBP competence among undergraduate physiotherapy students (Lennon et al. 2019). All in all, the strategies presented that proved to be effective in positively impacting the practices and students toward EBP utilise the concept of learning by doing according to context, the situation at hand, and with real-time interaction with people within the clinical placement itself, which are the very characteristics of experiential learning. In this strategy, experiencing is central to the learning process of the student (Kolb 2005).

Informally, during instances when a patient did not show up for physiotherapy session, clinical educators would conduct case discussions and skills demonstration, allowing revision of manual techniques or exercise in preparation for the next patient. The skills demonstration of therapeutic intervention was done by the physiotherapy student onto the clinical educator or a colleague who acts as a patient for the time being. This strategy of role-playing was also used as a knowledge translation tool for EBP in other settings as well (Maas et al. 2015; van Dulmen et al. 2014; Bekkering et al. 2005; Stander, Grimmer & Brink 2018). Discussion and feedback for corrections were given on the spot for improvement of handling and execution of the technique (Tilson et al. 2014; van Dulmen et al. 2014; Dizon, Grimmer-Somers & Kumar 2014; Olsen et al. 2015).

Shadowing was one of the strategies used to positively enhance students' propensity to

EBP in the present study. Through shadowing, the students get to see their clinical educators in their element of assessing and treating patients. This phase ensures that students know what is expected of them when it comes to patient management. Through shadowing, the students can observe their clinical educators' individual approach to patient management. This opportunity widens their perspective on how they approach their future patients once they get full autonomy to practice as clinicians. Within the "shadowing phase" of the student with her clinical educator, the student also learns the things a clinician does outside patient management time such as consulting evidence and reading clinical guidelines. One theory of learning in particular that supports this finding is Vygotsky's zone of proximal development (Loftus & Higgs 2005). It highlights the vital position of mentors and supervisors in the learning experience of students, in creating a scaffolded learning, and in achieving higher order thinking skills and competencies. Shadowing other professions is also a good source of interdisciplinary learning (Delany & Bragge 2009).

Following a patient's progress, exposure to a variety of patient cases and being supervised by different clinical educators are three more common strategies that facilitate EBP skills. All three strategies are dependent on careful planning and proper timetabling of clinical hours of the physiotherapy students. Among these three strategies, exposing students to different clinical educators was found to be in line with a previous study.

Being trained by a variety of clinical educators with different years of working experience, different sources of evidence, and different methods of keeping themselves up to date with evidence optimises students' exposure to different clinical decision-making approaches. The role of clinical educators is to impart knowledge and augment skills among students in a strategic and logical manner (Delany & Bragge 2009), hence being able to work with different clinical educators allows students to receive a wider breadth of knowledge and skills than they would if they were only assigned to one clinical educator.

5. Conclusion and Implications for Practice

This study showed that there are multiple ways on how clinical educators embed EBP into students' undergraduate clinical training. And what is good is that one strategy is not superior in efficacy to another, and each strategy can be used on its own or in conjunction with different ones. Another good thing about the teaching-learning strategies identified in this study is that they can easily be integrated into monthlong clinical training. The strategies can be embedded into the whole process of clinical training without compromising actual patient care.

6. Strengths and Limitations

Strengths of the study include a homogenous population and the achievement of data saturation. Though the study did not involve any human experimentation and only

gathered insights and opinions of participants, some clinical affiliates were still hesitant to allow data gathering within their institutions. There was no scarcity in the number of clinical educators from clinical affiliates that were willing to join the study. However, achieving a wider breadth of hospitals and institutions covered by the study was dependent on the gatekeeper's acceptance or rejection of the conditions of the study. This means the generalizability and transferability of the findings are part of the limitations of this study as it was done within the emirate of Abu Dhabi only involving clinical educators in the private setting.

7. Suggestions for Further Research

Future studies may also look into the perspectives of lecturers to see whether expectations are aligned with those of the clinical educators. A focus group discussion involving lecturers and clinical educators may produce data that can suggest strategies on how to fill the gap in theory and practice of EBP.

8. Statement of Ethics

This study involved human participants and therefore, an ethical clearance was required. The Research Ethics Committee of The British University in Dubai approved this study on 24/01/2018 and Fatima College Research Ethics Committee approved this study on 14/05/2018 with reference number FCHS/RECA/004/2017-18.

9. Disclosure Statement

The authors declare no conflicts of interest; this article does not concern any commercial product.

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