

# **An investigation into the role of clinical education in preparing undergraduate physiotherapy students for professional practice in the Emirate of Abu Dhabi**

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## **Abstract**

**Background:** Clinical education is an integral part of physiotherapy education. In clinical placements students encounter complex cases and challenging circumstances and learn to withstand and overcome these situations. These experiences are vital for graduates' readiness for professional practice.

**Purpose:** The aim of this research was to understand the contribution of clinical education in preparing undergraduate physiotherapy students for professional practice.

**Methods:** This study took a qualitative methods approach and interviews were used to collect data from physiotherapy students and clinical educators. Participant responses were audio recorded and verbatim transcribed for analysis. NVivo12 was used for analysis of data.

**Results:** Thematic analysis of participants' interviews confirmed that the real-world experience was useful in developing reflective practice, exposure to evidence-based practice and autonomous practice, opportunity to develop interpersonal skills and develop open-mindedness for feedback which are all vital for professional practice.

**Conclusion:** It was evident from the findings that clinical education played a crucial role in preparing the physiotherapy students for entry-level physiotherapist roles.

**Keywords** Clinical education, physiotherapy, practice readiness, clinical placements

## **1. Introduction**

Physiotherapy is a science-based healthcare profession and takes a holistic approach to health and wellbeing including individual lifestyle and it is a degree-based qualification ("The Chartered Society of Physiotherapy" 2018). Physiotherapists use their knowledge and skills to treat a range of clinical conditions associated with various systems of the body such as musculoskeletal, neuromuscular, cardiovascular, and respiratory systems ("The Chartered Society of Physiotherapy" 2018). Physiotherapists provide services to individual clients to develop, retain and regain maximal movement and function throughout their lifespan (Chetty et al, 2018). Bachelor of Physiotherapy is an entry-level qualification in most countries. Upon successful completion of this program requirements, graduates are eligible to apply for registration as a physiotherapist in the country of qualification and abroad (Hager-Ross & Sundelin 2007). In some countries, there are additional requirements of passing the national level licensing examination to qualify for license. For example, in the United Arab Emirates, a candidate with a physiotherapy qualification from a higher education institution within the country and/or outside need to pass the licensing exam conducted by either the Department of Health of Abu Dhabi, Dubai Health Authority, or the Ministry of Health (Department of Health 2017). It is mandatory for the practicing physiotherapists to be registered with one of these authorities. Physiotherapy clinical education is a key component of physiotherapy education and has a powerful effect on

students' learning and can shape their attitude towards professional practice (Dockter, Roller & Eckert 2013; Hall et al. 2021). During clinical education students get the opportunity for professional socialisation while working within the multidisciplinary healthcare team. Clinical education facilitates the development of cognitive and psychomotor skills that are vital for independent practice (Dyer et al. 2015; Montpetit-Tourangeau et al. 2017). It is important to reinforce the students' attitude and skills for lifelong learning and critical self-reflection (Seif et al. 2014). Clinical education provides numerous opportunities to teach these skills (Dyer et al. 2015).

Clinical education is a complex process in physiotherapy education, and it is multidimensional in nature and has a greater role in nurturing physiotherapy students to achieve entry-level practitioner competence. Physiotherapy education encompasses approximately 45% of course hours in clinical education (McCallum et al. 2013; Reilly, Beran-Shepler & Paschal 2020). During clinical education, students get the opportunity to recognize their roles and responsibilities as a physiotherapist (Major et al. 2020; Williams et al. 2014). As an autonomous practitioner, it is essential that the entry-level physiotherapist demonstrates core competencies, and a wide range of skill sets to act in a safe and satisfactory manner in their role. It is a requirement that physiotherapy students are placed in a variety of clinical settings for at least 1000 contact hours of clinical practice within their course (O'Shea et al. 2015). Locally the "Ministry of Higher Education and Scientific Research" (MOHESR) of the United Arab Emirates (UAE) also maintains the

similar guidelines (Commission for Academic Accreditation 2011) which the affiliated institutions are obliged to comply. Providing optimal learning opportunities to develop clinical skills is vital for achieving the graduate attributes. Clinical education aims to integrate theory into real-life situations through experience in interdisciplinary and holistic healthcare services. The rapid changes in the healthcare system and complexities associated with service delivery, financial constraints, and increased accountability for physiotherapists may impact on the learning opportunities for students within clinical education settings (Williams et al. 2014).

Educational research within the UAE and GCC is not a new dimension of research as locally, several educational researchers are actively engaged in scholarly activities. However, there is a lack of research in health sciences education in the region and, there were only two studies found since 2006 in the GCC. In the recent study, Al Maghraby and AlShami (2013) explored the Saudi Arabian physiotherapy students' learning styles and their preferred teaching methods. Earlier to this study, Wessel and Larin in 2006 conducted research on physiotherapy students studying at the University of Sharjah and they have explored the role of clinical training in developing the reflective practice skills in undergraduate physiotherapy students. Clinical education for physiotherapy students is an integral part of their professional education and the real-world experience that the clinical environment will provide the learners is irreplaceable. It is important to understand the role of clinical education in developing the skills of undergraduate physiotherapy students and

its contribution towards preparing them for their future role as physiotherapists. There is a gap in the literature on this domain within the UAE and in the Gulf region, which supports the rationale for this research. Within the UAE, there are three higher education institutions offering physiotherapy program. The institution selected for this research is situated in the Emirates of Abu Dhabi in the UAE offering a total of six allied healthcare programs including physiotherapy to female students only. The physiotherapy program was a transnational curriculum from an Australian university consisting of 30 weeks of clinical placement during the final two years of a total of five-year physiotherapy program. The purpose of this research was to explore the role of clinical education in preparing the undergraduate physiotherapy students for professional practice. The objective was to explore the role of clinical education in preparing undergraduate physiotherapy students for professional practice in the Emirate of Abu Dhabi. The study will address the following research question:

What is the role of clinical education in preparing the undergraduate physiotherapy students for professional practice in the Emirate of Abu Dhabi?

## **2. Literature Review and Theoretical Framework**

Researchers (Conn et al. 2012; Clark et al. 2015; Wu et al. 2016) argue that clinical education plays a pivotal role in developing the clinical reasoning skills which is the foremost factor that determines the professional practice readiness. Though the universities are highly committed to produce the healthcare workforce required to meet the demands of

the complex as well as challenging clinical situations, health service providers often complain that the new graduates in healthcare are “not work ready”. The state-of-the-art facilities and the modern teaching and learning approaches do not guarantee the attainment of expected levels of clinical reasoning skills in the students.

UAE Government has launched Emiratization campaign which mandates the inclusion of Emiratis in all kinds of job sectors including the health sectors. Only 8% of nurses in public hospitals in the UAE are Emiratis (The National 2019) and the health sectors in the country heavily relies on expatriates for nursing, physiotherapy, and other allied health professional roles. The Ministry of Health is taking efforts towards Emiratization of the healthcare workforce and awards full scholarship for Emiratis to study the health sciences program (Ravindranath & Al Amir 2019). The mission of the health sciences institute where this study was conducted is to “prepare knowledgeable and skillful professionals, who will deliver evidence-based practice in different health care settings” (Host institution 2019). This being a female only institution posts challenge on the students to overcome the cultural sensitivity associated with their learners. To prepare the students for contemporary healthcare practice which involves working in a dynamic, challenging, and multicultural healthcare settings, it is important that the learners need to be nurtured with a flexible, dynamic, and culturally sensitive curricula that are responsive to the changing health care needs in the UAE.

According to Lekkas et al. (2007), clinical education forms the core component of the undergraduate physiotherapy curriculum, and it has a greater role in the development of students' clinical skills and attitudes. Students appreciate learning in clinical setting and the belief is wide that therapeutic skills are crystallized by linking the theory to practice within the real environment. Clinical education offers scope for developing the professional skills through supervised practice, and it is appropriate for the courses that uses clinical setting as place for learning. The main aim of clinical education is to provide real-world opportunities to the students to achieve the competence of an entry-level practitioner by applying their knowledge and skills. In addition, it promotes progressive independence in students' performance and responsibility through guidance of a qualified practitioner (Lekkas et al. 2007). However, the conceptualization of clinical education and the way it is delivered significantly varies from institution to institution in the UAE and the other countries. Though the formal university education helps to develop the professional identity, apprehension of self occurs easily through professional socialization that is through conversing with mentors and colleagues (Peters et al. 2016). The influence of clinical culture and the social environment on clinical reasoning has not been explored well. When compared with other aspects of clinical reasoning, clinical cognition seems to be distributed while considering the cultural context and social environment, as it is produced by group of people working to achieve a shared goal (Peters et al. 2016).

Clinical education plays a crucial role in determining the professional practice readiness of

the healthcare students. Thus, the learning theories form the conceptual framework and guide the delivery of clinical education. Social learning theory (Lave & Wenger 1991; Wenger 2009) assumes that learning happens because of “lived social experience” and in healthcare settings, learners need to work with interdisciplinary team and at multiple levels. Irrespective of the context, from a psychological point of view, the social learning theory incorporates learning as “belonging, becoming, experience, and doing”. When a novice practitioner grows into the role, social learning theory provides the needed guidance for evolution of views, activities, and thinking as a healthcare professional and a ‘life-long learner’ (Gyoh 2011). Kolb believes that learning is holistic when the learner is exposed to experiential learning, and hands-on experiences will develop the skills required for professional practice. Kolb’s theory is connected to clinical education because the clinical placements and its associated clinical experience provide opportunities for healthcare students to develop and demonstrate new knowledge and leaves the educators with several teaching strategies to teach the students with different learning styles (Engels & De Gara 2010). Physiotherapy is an interactive process which involves inter-subjective encounters between the patients and physiotherapists. Hence, it is essential to explore the lived experiences of all those involved in the clinical encounter to understand physiotherapy practice (Shaw & Connelly 2012). Chowdhury and Bjorbaekmo (2017) have adopted phenomenological approach in their study to explore the lived experience of physiotherapist in their day-to-day life of practicing physiotherapy. Phenomenological

approach provides insight into intellectual competence and practical capabilities of the physiotherapist, and both these attributes of the practitioner is essential in determining the clinical reasoning skills of physiotherapists. Phenomenography is one of the research approaches, which attempts to explain “how someone experience a phenomenon, not how it actually is” and the main aim of this approach is to describe, analyse, and understand the lived experiences but not to explain the relationship among them. Phenomenography focuses on identifying the variations in individuals’ experiences and attempts to acknowledge different ways of understanding and perceiving learning as a phenomenon. Phenomenography attempts to find what the learners have learned from a situation by retrospectively asking the learners to reflect on their experience (Skoien, Vagstol & Raaheim, 2009). An interpretive approach was useful to gain a deeper understanding of the lived experience in the “complex world” of clinical education settings from the point of view of people who lived it. Interpretive researchers believe that reality is socially constructed, and their interpretation plays a pivotal role in revealing the reality. The ontological assumption for this study was reality is locally and specifically constructed by participants’ actions and interactions during clinical placements within the healthcare settings. Epistemological assumptions were findings that emerged as the investigation occurred.

### **3. Method**

This study was conducted in a Health Education Institution within the United Arab

Emirates. Physiotherapy students studying in this institution attend a total of thirty-four weeks of clinical placements. The clinical education for physiotherapy program is structured in a blocked pattern where students attend 7 placement rotations of 4-5 weeks each rotation. Clinical education emphasizes on self-directed learning and starts with supervised practice and progresses to independent practice. Physiotherapists working in the hospitals were assigned as clinical educators for these students and were responsible for supervision, feedback, and evaluation of student performance in the placement. Prior to engaging in clinical education, all potential clinical educators need to attend the clinical educator workshop conducted by academic staff in the Higher Education Institution. The purpose of this workshop is to provide an overview of the physiotherapy curriculum, program learning outcomes, expectations of clinical placement and to familiarize clinical educators with the “Assessment of Physiotherapy Practice (APP)” tool used to evaluate student performance. Academic staff were assigned as visiting tutors to provide necessary support for both students and clinical educators. Students attended placements in core areas of physiotherapy practice that include musculoskeletal, neurology and cardiorespiratory. Placements were offered by both public and private healthcare providers within the country with whom the Higher Education Institution have affiliations for clinical education.

### *3.1 Design*

Johnson and Christensen (2008) present three major approaches or paradigms for conducting educational research which includes quantitative, qualitative, and mixed method research. Quantitative methods tend to employ strict sampling techniques and use validated instruments or questionnaires to gather numerical data that is mainly used to monitor changes in performance of individuals or a group (Polit & Beck 2006). In contrast to this “qualitative research methods are used to understand phenomena from the perspectives of those involved, to contextualize issues in their particular socio-cultural-political milieu, and sometimes to transform or change social conditions” (Glesne 2011, p.4). The qualitative methods use the interpretive paradigm which mainly focusses on the context and lived experiences of people in that context (Glesne 2011). This study was conducted using a qualitative method and adapted phenomenology approach with exploratory research design. The purpose of the study was to understand the role of clinical education in preparing physiotherapy students for professional practice. To achieve this, it was necessary to investigate stakeholders' lived experience within the context of clinical education. Qualitative method was appropriate to capture the participant viewpoints and experiences and, it is vital for providing exploratory and/or explanatory data to answer the research question.

### *3.2 Sample*

A convenience sampling was used to recruit the participants for the study and the researcher targeted the entire population available to be included in this study. According to Johnson & Christensen (2012), when the researcher asks people with some specific characteristics to be a part of their study then the researcher favors convenience sampling to recruit participants for their study. For this study, undergraduate physiotherapy students who have completed all classroom based taught modules and are currently attending their clinical placements were only included in this study. The clinical educators need to be certified and should have attended necessary training from the college regarding clinical education expectations. This means the participants for this study were required to fulfil certain criteria to be included in the study hence convenience sampling is appropriate. To answer the research question, it was essential to be selective with participants included in the study. Convenience sampling focuses on specific characteristics of a population of interest and in this study, we were interested in understanding the lived experience of physiotherapy students and clinical educators to establish the role of clinical education in preparing physiotherapy students for professional practice. Although several types of convenience sampling are used in research, this study used the critical case sampling type to recruit participants as it helps to make “logical generalizations” in exploratory qualitative research. An invitation to take part in the study was emailed to all 34 students who were attending clinical placements and their clinical educators. A total of 9 students and 26 clinical

educators expressed willingness to participate.

### *3.3 Data Collection*

The data collection method in qualitative research includes interview, focus group, observation, document analysis, etc. (Meriam 2009; Glesne 2011). Since the main purpose of the study was to investigate the contribution of clinical education in preparing undergraduate physiotherapy students for professional practice, the researcher was keen on extracting the students' perceptions about their own experience in clinical education and the perspectives of their clinical educators. To develop an in-depth insight into the research problem it was essential to gather rich, nuanced, and holistic data. Interviews were considered as an appropriate method for data collection as it helps to gather rich and detailed information about the phenomenon investigated. Wijnbenga, Bovend'Eerd and Driessen (2018) incorporated qualitative research methods and used focus groups and semi-structured interviews in their study on entry-level physiotherapy students in European School of Physiotherapy at Amsterdam to explore how these students learn the clinical reasoning skills during their clinical placements. This study included semi-structured interviews to gather the relevant information from the undergraduate physiotherapy students and their clinical educators. The reason for choosing semi-structured interviews over focus group was because the student participants were at different year levels in the physiotherapy program, that is, year 4 and year 5 physiotherapy students were recruited for

the study. The intention was to collect rich data with anecdotal evidence from each participant and at the same time avoid any potential inferences of other participants. Therefore, the personal interview using a semi-structured interview guide was preferred as a qualitative data collection method for this study. When the researcher does not have any idea about the research problem that is being investigated, it might be ideal to use “non-structured interviews” as a method for qualitative data collection, but when the researcher possess some knowledge and understanding of the research problem it is appropriate to use the “semi-structured interviews” as qualitative data collection method (Polit & Beck 2006). In the context of this study, the researcher already possesses the knowledge and understanding of the research problem through extensive literature review and the findings of a prior quantitative study. Therefore, the semi-structured interviews are the appropriate choice for the purpose of this study which explored the clinical education’s contribution in preparing undergraduate physiotherapy students for their future professional practice. Two separate sets of semi-structured questionnaires were developed and used for interviewing the students and clinical educators. A semi-structured questionnaire was considered appropriate as it provides flexibility to participants to express their perspectives and still explicitly gather the core elements of the phenomenon being studied. Prior to administering to the participants, the semi-structured questionnaire was piloted with a few selected students, clinical educators, academics, and an expert in the field to ensure reliability and validity of the data to be collected. Face-to-face interviews were conducted with all

participants at their convenient place in privacy. The principal investigator explained the purpose of the study to each participant at the start of the interview and informed written consent was obtained to take part in the study. All interviews were audio recorded and verbatim transcribed. Later the transcripts were shared with participants to ascertain the accuracy of data collected.

### *3.4 Analysis*

Computer assisted qualitative data analysis using QSR NVivo 12 program was conducted. Files containing transcripts were imported into NVivo. Initially, “autocode” option in the NVivo program was used to identify words or phrases with similar meaning and to assign codes. However, the results of autocoding found hundreds of codes and it was unrealistic to assign categories. Therefore, each participant transcript was thoroughly read, and codes were assigned to similarly meaning words or phrases from different participant transcripts. The thematic analysis model of Braun and Clarke (2012) was considered appropriate for analysing the qualitative data because of the philosophical underpinnings of this research focused on the interpretive approach. Hence, we systematically searched the data to identify patterns within the data to provide a rich description of the phenomenon using meaningful themes.

#### **4. Results**

All student participants (n=9) were females. Clinical educator participants (n=26) included both males (n=10) and females (n=16). Clinical educators' experience in clinical practice ranged between 5 to 32 years and their experience in clinical education ranged between 2 to 12 years. Six themes were identified. These include the real-world experience, interpersonal skills, reflective practice, evidence-based practice, autonomous practice, and open-mindedness.

##### *4.1 Real-world experience*

The interview findings suggest that clinical education provided numerous opportunities for students to experience the real world of physiotherapy practice and understand the daily routine for physiotherapists. These real-life situations facilitated students' problem-solving skills through patient interaction, conducting clinical assessments, analysing the findings, identifying patient problems list, and establishing goals. Experiencing the bigger picture of professional practice and the challenges arising from different situations helped students to develop their ability to cope with challenges. For example, one of the clinical educators said,

*When you come to clinical placements it is not only about treating the patient, it is about dealing with situations, and how you tackle that, and it is a mixture of many*

*things. So, it helps a lot for future professional practice. (CE 14)*

However, students reported mixed feelings and they did not feel confident to practice independently in some areas because of lack of opportunities. For example, a student said,

*It (clinical placements) helped but there is a gap. Lack of experience in women's health and paediatrics. Taping, manual therapy and aquatic therapy skills are still lacking as there is not much experience in these aspects. (ST 4)*

#### *4.2 Interpersonal skills*

The qualitative data confirmed that clinical placements created numerous opportunities to develop interpersonal skills through multidisciplinary team working and helped students to recognize the roles of other healthcare professionals. For example, one of the clinical educators said in the interview,

*We get the students to attend multidisciplinary team meetings, so they understand the role of each member in the multidisciplinary team. We get them do some joint sessions with speech and language therapists and occupational therapists and we encourage them to constantly liaise with the nurse before and after the treatment and with the case manager especially after the first week when they become familiar with the roles of each member of the MDT. (CE 16)*

This was also confirmed by the student in the interview,

*It was difficult to be friendly with them. By asking questions and getting involved in discussions I started to develop a good relationship with them. I explain everything including what I am going to do, why I am doing that and how I will do it. Just good communication helped to build a rapport with them. (ST 2)*

#### *4.3 Reflective practice*

The findings confirm that clinical educators used various strategies to promote reflective practice. For example, one of the clinical educators stated that,

*We have introduced them to reflective practice, going through the Gibb's cycle. When you make the same reflection using the same scenario 2 to 3 times that is when they pick up some useful learning. The proactive initiation to search for the literature and get answers, and I think to do that they have to hone their reflection skills. (CE 15)*

Another example from the student interview is evidence of their reflections.

*I want to master my skills in doing the initial assessment and treatment planning in new patients. (ST9)*

#### *4.4 Evidence-based practice*

Johnson and Christensen (2008) present three major approaches or paradigms for conducting educational research which includes quantitative, qualitative, and mixed

method research. According to clinical educators, students used a range of evidence such as clinical practice guidelines to support their case studies and presentations. However, clinical educators noticed some gaps in students' understanding of “evidence-based practice” as students’ ability to apply evidence into practice was limited and often students needed guidance to link the evidence to clinical scenario. For example, one of the clinical educators stated,

*They tend to use their clinical guidelines as scientific evidence at the end of placement when they are doing the presentation. But they need a lot of encouragement while on placement as well as to put those clinical guidelines and research evidence into practice. I think they consider it as two separate entities and they find it hard to link them together. They understand the importance of CPGs, but they find it difficult to apply it in practice by linking the research and guidelines to what they should be doing.*

*(CE 16)*

#### *4.5 Autonomous practice*

The findings indicate that clinical educators encouraged students to independently manage non-complex patients that helped students to gain confidence in patient handling. For example, one of the students reported the following in their interview,

*They let me deal with the patient individually which was a challenge for me. They told*

*me to do the initial assessment and treatment for patients. I was also able to progress the treatment for them. (ST 1)*

#### *4.6 Open-mindedness*

Findings of the interview confirm that students were becoming open-minded during clinical placements as clinical educators noticed changes in students' attitude towards feedback and showing empathy to the patient. For example, a clinical educator stated,

*Their attitude to feedback has been very good. Most of the time they take it very positively. They understand that they are not good at something, and this is for their own good, and they will grow into better practitioners with feedback. (CE 25)*

Students reported mixed feelings, and some did not like to receive the feedback in front of patients. Examples are,

*In some rotations I got the feedback in front of the patient, and I did not like that. I told my educator that I accept her feedback but not in front of the patient. She can tell me the feedback even if it is bad because I am there to learn. (ST 1)*

*We did not receive feedback after seeing each patient, it is only during the midway and final APP session they give feedback. But sometimes I go to see a new patient and I want to know if I did good or not. They did not give any feedback. (ST 2)*

From the findings of this study, it can be concluded that clinical education provided

numerous opportunities for students to gain real-world experience, develop interpersonal skills and reflection skills, build knowledge in evidence-based physiotherapy practice and autonomous practice skills, and cultivate open-mindedness.

## **5. Discussion**

An entry-level physiotherapist is expected to possess certain competencies and skills to demonstrate readiness for physiotherapy practice within the dynamic healthcare setting. The main expectation is to be an autonomous practitioner in handling patients and addressing their needs. They are expected to demonstrate good interpersonal skills while working within a multidisciplinary team and be a reflective practitioner to monitor progress to detect change and modify their approach to patient care when needed. Additionally, all physiotherapists are expected to demonstrate an awareness of evidenced-based practice, an aptitude for interdisciplinary team working, and a reflective practice to ensure best practice underpinned by recent available evidence. Further, physiotherapists should be receptive to feedback to improve their own practice standards and to enhance the quality of service.

From the findings of this study, it can be argued that in clinical placements, there were numerous opportunities for students to work within multidisciplinary teams and develop their interpersonal skills. As part of their case study presentation during each placement they understood the importance of evidence-based practice and had the opportunity to

apply it in real practice. This is consistent with the findings of McMahon et al. study conducted among physiotherapy students in Ireland (McMahon et al. 2016). It was also evident from our findings that clinical education promoted the attitude for reflective practice. These findings are like the ones reported in the literature that recommended the use of reflective practice to easily navigate through uncertainties, complexities, and any unique scenarios (McLeod, Barr & Welch 2015; Ziebart & MacDermid 2019).

Feedback is vital for health professionals to develop competencies and confidence in professional practice. It helps in identifying the gaps in performance and provides guidance to achieve the expected level of competencies. Based on the findings of this study, clinical placements were useful in developing open-mindedness among students especially towards receiving feedback. Physiotherapy students were able to reflect on their feelings, experience, and various incidents in clinical placements from the feedback of their clinical educators. The importance of constructive feedback to manage underperformance was reported in several literature sources (Adamson et al. 2018; Johnson et al. 2019; Warman, Bell & Rhind 2014) and the results of this study are coherent with the findings reported in previous studies. Clinical education through practice placements provides opportunities for students to develop knowledge, skills, behaviours, and values required for safe and effective practice. Students gained various skills that enhanced confidence and promoted autonomous practice. Clinical educators empowered students by providing opportunities for making their own clinical decisions. These findings are in line with the results of

previous studies on nursing and physiotherapy students that reported the role of practice placements in developing autonomous practice abilities in students (Peters, McInnes & Halcomb 2015; Clouder & Adefila 2017).

As expected, clinical placements provided a contrasting learning experience to the classroom-based learning. The less controlled environment within the healthcare settings presented numerous challenges to students and it helped students to get accustomed to future professional practice. Students valued the real-life experiences in clinical placements and clinical educators too, stressed the importance of exposure to real-world experience for students for developing their problem-solving skills and dealing with uncertainties in day-to-day practice (Carraccio et al. 2008; Milanese, Gordon & Pellatt 2013; McMahon et al. 2016; Hough et al. 2019).

## **6. Conclusion**

Physiotherapists primarily work in healthcare settings that are becoming increasingly complex and rapidly changing. The fiscal restraint and scrutiny from various sources increased the accountability for physiotherapists. Ability to respond to high-pressure situations is vital for survival and professional growth. Hence, the newly qualified physiotherapists should possess a solid foundation of clinical skills. Therefore, the aim of physiotherapy programs in line with the standards of the World Physiotherapy and several other national level regulatory bodies must be to prepare undergraduate physiotherapy

students for professional autonomy and best practice. Clinical education is an integral and distinct part of undergraduate physiotherapy education and during clinical placements students have an opportunity to refine their knowledge and skills that they have learnt from classroom and practical labs. It was evident from the findings that clinical education contributed to the development of competence and skills required for professional practice through real-world experience. It can be concluded that clinical education played a crucial role in preparing the students for professional practice.

## **7. Implications for Research, Practice and/or Society**

To the best of the researchers' knowledge, this was the first study in the UAE that explored the role of clinical education in preparing undergraduate physiotherapy students for professional practice readiness. More than a decade ago, Wessel and Larin in 2006 reported the significance of clinical placements in developing the reflective practice skills of undergraduate physiotherapy students. Though the professional practice readiness of healthcare students and new graduates are explored by several educational researchers, most of these studies were conducted in Australia, South Africa, United Kingdom, United States and in few European countries. Literature search in databases produced very limited evidence in the Middle East where only a few studies were published in Saudi Arabia and Iran. Internationally the research on professional practice readiness were mainly conducted

on nursing and medical students and very limited studies were conducted on physiotherapy student population. The findings of this study are expected to contribute to the literatures in healthcare educational research and believed to support the clinical teachers in devising their educational strategies for clinical education. Apart from the above-mentioned contribution towards the literatures, this study also makes contribution to the fellow researchers interested in health educational research from the perspectives of its theoretical framework and the methodology used. The conceptual framework for this study evolved from several adult learning theories. These will be useful to the educators, curriculum developers and policy makers in physiotherapy education especially in developing strategies for providing effective clinical education as one third of the physiotherapy education is formed by clinical placements. The clinical educators need to consider the gaps reported in clinical education for an example, the inconsistency in feedback, and devise appropriate educational strategies to overcome these shortcomings in the future.

## **8. Limitations**

One of the main limitations of this study was all students who participated in this study were females due to the restricted single-sex admission policy of the institution, hence, there was no opportunity to include views of male students. Further research is recommended in this domain with larger sample size that include male and female students.

## **9. 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 11/09/2017 and Fatima College Research Ethics Committee approved this study on 12/11/2017 with reference number FCHS/RECA/003/2017-18.

## **10. Disclosure Statement**

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

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