

Research Article



The Implementation of the North American Clinical Training Model in UAE Pharmacy Schools: The Gap Between Standards

تطبيق النموذج الأمريكي للتدريب السريري في كليات الصيدلة في دولة الإمارات العربية المتحدة: الفجوة بين المعايير

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Abstract

This article discusses changes to clinical training in UAE pharmacy schools in response to policy changes by the government that required pharmacy schools to obtain accreditation from the Accreditation Council for Pharmacy Education (ACPE) in the United States. It shows how pharmacy schools have reformed their curriculum to meet international standards. A critical comparative case study approach was employed using three data resources: government legislations and laws, pharmacy schools' websites, and semi-structured interviews with stakeholders. The main findings were that the ACPE accreditation helped improve the quality of pharmacy programs. However, students, when conducting their clinical training, are mostly observing and not providing direct patient care due to legislation restrictions, and the number of hours for clinical training is still behind. Therefore, the researcher argues that the clinical training model in pharmacy schools still needs development in multiple areas compared to the North American model, despite the pharmacy schools having the ACPE accreditation. Specifically, further support from the state concerning professional legislation and laws is needed to help advance and develop the professional competencies of pharmacists.

المخلص

يناقش هذا المقال التطورات التي طرأت في التدريب السريري لكليات الصيدلة في دولة الإمارات العربية المتحدة استجابة لمتطلبات التغيير التي اقترتها الحكومة للحصول على الاعتماد الأكاديمي من مجلس التعليم الصيدلي الأكاديمي في الولايات المتحدة الأمريكية. يوضح المقال كيف قامت كليات الصيدلة بإصلاح مناهجها الدراسية لتلبية المعايير الدولية. تم استخدام منهج المقارنة النقدية للدراسة بالاعتماد على ثلاثة مصادر: التشريعات والقوانين الحكومية، المواقع الإلكترونية لكليات الصيدلة، والمقابلات مع ذوي العلاقة. لقد توصلت نتائج الدراسة إلى أن استخدام معايير الاعتماد الأمريكي قد ساهم في تحسين جودة برامج كليات الصيدلة. وبالرغم من هذا فإن طلاب كليات الصيدلة عند قيامهم بالتدريب السريري يعتمدون على الملاحظة أو المراقبة بشكل كامل ولا يمكن لهم تقديم الرعاية الصحية المباشرة للمرضى بسبب القيود التشريعية ولا تزال عدد ساعات التدريب السريري قليلة مقارنة بالنموذج الأمريكي. لقد ناقش الباحث أن نموذج التدريب السريري في كليات الصيدلة لا يزال بحاجة إلى التطوير في مجالات مختلفة مقارنة بالنموذج الأمريكي على الرغم من حصول كليات الصيدلة في الدولة على الاعتماد الأكاديمي الأمريكي. فضلاً عن ذلك توصل البحث إلى أن كليات الصيدلة بحاجة إلى المزيد من الدعم الحكومي فيما يتعلق بالتشريعات والقوانين المهنية لمساندة في تطوير الكفاءات المهنية للصيدلي.

Keywords: Clinical training, Accreditation, Pharmacy practice, Policy, Pharmacy education

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الكلمات المفتاحية: التدريب السريري، الاعتماد الأكاديمي، ماركه الصيدلة، سياسات، تعليم الصيدلة

1. Introduction

As the pharmacist's role has changed from a "pill dispenser" to a "health professional," pharmacy education has had to adapt (Wiedenmayer, 2006). New competency frameworks have been suggested by pharmacy regulatory authorities around the world (American Council for Pharmacy Education, 2007; National Association of Pharmacy Regulatory Authorities, 2014), and clinical training (CT) has become an integral part of pharmacy education worldwide (Carter, 2016). CT is hands-on and experiential learning undertaken in a community or hospital pharmacy setting that involves direct interactions with patients (American Council for Pharmacy Education, 2016), allowing trainees to implement the knowledge, skills, and competencies gained during their study. In line with this global trend, pharmacy practice and education in the United Arab Emirates (UAE) have also evolved remarkably over the past two decades, including the adoption of the North American CT model.

While the North American CT model has many strengths, pharmacy education and pharmacy practice differ in important ways between North America and the UAE, and there are reasons to be concerned about the transfer of North American educational models to different parts of the world without localization and contextualization. Therefore, this paper asks: How have CT policies been developed in the UAE? And what are the current policies and practices governing CT at the emirate and federal levels?

Drawing on 15 interviews with stakeholders, the article finds that the Commission for Academic Accreditation (CAA) played an essential role in directing pharmacy schools to implement the North American CT model. It argues that CT is being integrated into pharmacy education in the UAE in line with government policies. Still, there is a big gap between how CT is being implemented in the UAE and how it is implemented in North America. Ultimately, this study recommends additional regulation, a national professional pharmacy competency framework, and administrative reforms to support pharmacists in taking on advanced clinical roles. There is an evident lack of research focusing on CT practices and policies in the UAE or Arab nations in general. Particularly, little attention has been paid to studying the transfer of a global model like CT in North America to different parts of the world and the challenges in implementation. Therefore, while this article is specific to the UAE, it has implications for other countries in the Gulf, the Middle East, and beyond.

1.1. Pharmacy Education in the UAE

There is a high demand for pharmacists in the UAE, linked to growing numbers of governmental and private hospitals, industrial manufacturers, and community pharmacies. In 2000, there were 35 public hospitals in the UAE, 14 private hospitals, and 128 outpatient clinics, later called primary healthcare centers (Moonesar et al., 2018). In 2021, the number of hospitals increased to 151 and accommodated 17,000 beds (The Ministry of Health and Prevention, 2021). There are over 4500 clinics and primary healthcare centers

employing pharmacists. Improving pharmacy education programs ensures pharmacists are prepared to take on clinical positions in the evolving and demanding healthcare system (Health Authority Abu Dhabi, 2011).

Pharmacy colleges in the UAE support the job market with pharmacists in three fields: community pharmacy, hospital, and industry (Rayes et al., 2015). This section provides a brief overview of pharmacy education in the UAE, which has significantly changed in recent years. Currently, there are eight pharmacy schools distributed over the emirates. The first pharmacy school was established in Dubai in 1992 and was soon followed in 1996 by the College of Pharmacy and Health Sciences in Ajman. In 2005, two more pharmacy colleges opened to undergraduate students, including Sharjah and Gulf Medical. In 2006, the governmental institute of Fatima College of Health Sciences, under the umbrella of the Institute of Applied Technology, started offering diploma degrees in pharmacy, and in 2011, began offering a bachelor's degree. Finally, in 2007, two more pharmacy colleges opened, one in Ras Al Khaimah and the other in Al-Ain. These rapid developments within such a short time frame highlight the country's rapid growth in pharmacy education.

Since their founding, pharmacy schools in the UAE have followed the United Kingdom (UK) training model, where the pharmacy degree consists of a 4–5-year Bachelor of Science (BSc) degree equivalent to the MPharm in the UK. The UAE Ministry of Health, like many countries around the world, accepts a Bachelor of Science degree in pharmacy as a minimum requirement for a pharmacist to practice. As such, most pharmacy colleges in the UAE offer a bachelor's degree in pharmacy, called either Bachelor of Pharmacy or Bachelor of Science, and accept students directly from secondary school. Similar to the UK, pharmacy education in the UAE has traditionally had a component called “practical experience” or “experiential learning” that introduces the students to real-life situations in three main areas of practice: the hospital, community pharmacies, and industrial settings. Additionally, some pharmacy schools in the UAE have had graduate programs in advanced CT, such as MSc programs in Clinical Pharmacy. In 2013, all graduate pharmacists from these programs were recognized by the regulatory bodies as clinical pharmacists, which means that the pharmacist would be able to manage the patient's treatment plan in different inpatient and outpatient settings (Department of Health Abu Dhabi, 2024; Ministry of Health - UAE Department of Health - Abu Dhabi Dubai Health Authority, 2013; Ministry of Health and Prevention, 2021).

This approach is very different from the North American model, where the requirement to practice is a PharmD – a professional doctorate awarded to students after completing a four-year professional program that typically follows a four-year undergraduate degree. In North America, regulatory educational bodies such as the Accreditation Council for Pharmacy Education (ACPE) and the Canadian Council for Accreditation of Pharmacy (CCAP) have set the standards for pharmacy programs and are responsible for their accreditation.

In recent years, the ACPE has focused on internationalizing its activities and began providing accreditation called “ACPE certification” to programs outside the US. ACPE certification helps guide pharmacy schools outside the US to advance their pharmacy educational programs by ensuring quality standards (Accreditation Council for Pharmacy Education, 2012). In 2023, the ACPE changed the term “certification” to “International Accreditation.” However, despite this change in terminology, graduates from international pharmacy programs still cannot apply directly to the North American Pharmacist Licensure Examination (NAPLEX) for licensure in the United States. International pharmacy programs in 12 countries are accredited by the ACPE, including India, Egypt, Iraq, Jordan, Lebanon, Libya, Oman, Saudi Arabia, Northern Cyprus, Indonesia, Mauritius, and the UAE (Accreditation Council for Pharmacy Education, 2025).

In 2018, the UAE’s Ministry of Education (MOE) produced several policies to help educational institutions develop their programs and enable them to compete internationally. As a result of these policies, pharmacy schools were directed by the CAA, the federal quality assurance agency, to reform their curriculum toward clinically focused programs. To accomplish the new goal, policymakers imported the North American CT model and required pharmacy schools to obtain ACPE accreditation (The United Arab Emirates’ Government portal, 2018). Before these reforms, the only institute in the country that provided a Doctor of Pharmacy (PharmD) program was the Gulf Pharmacy College in Ajman. In 2018, a PharmD program was established as a two-year graduate program in the pharmacology department at UAE University.

2. Literature Review

This article is situated within the literature on pharmacy education in the Middle East. Despite the rapid change in the profession in the region, there has been very little literature on the topic. The literature on pharmacy over the past two decades in the Middle East and North Africa (MENA) region has focused on issues related to pharmacy practice, pharmaceutical sciences, and assessment methods. A smaller number of publications elaborated on the number of pharmacy schools, statistics of student admissions, and programs offered within the region (Bajis et al., 2016; Hamoudi et al., 2011, 2015; Kheir et al., 2008; Sarheed et al., 2014). Al-Ghananeem (2018) stated the need to expand clinical pharmacy in the Arab world. Alkhateeb et al. (2018) explained the different international accreditation bodies governing pharmacy schools in the Gulf and argued that this would likely improve the quality of pharmacy education. In 2020, scholars started articulating the importance of professional competencies in pharmacy education. For example, Katoue and Schwinghammer (2020) elaborated on applying competency-based education in pharmacy schools in developed countries and, to a lesser extent, in developing countries (Katoue & Schwinghammer, 2020). Also, Akel et al. (2021) described how pharmacy schools expanded their CT facilities to accommodate both introductory and advanced CT experiences for pharmacy students, which helped gain ACPE accreditation. In 2021, Al-Haqan et al. (2021) described the development of a

competency framework for pharmacists in Arab states, which follows the International Pharmaceutical Federation (FIP) Global Competency Framework. Recently, Attarabeen et al. (2022) stated the positive impact of international accreditation bodies on the educational and evaluation processes in pharmacy schools in countries such as the UAE, Saudi Arabia, Jordan, India, and Indonesia. Notably, one of their key findings was that pharmacists in training rarely had the opportunity to engage in interprofessional collaborative decision-making, which is a problem because it is a large part of pharmacy practice. Despite the growing literature and research agendas (Obaid et al., 2022), very few articles have been published about CT and how this links education, policy, and the pharmacy profession.

Given the changing nature of pharmacy education, there is a need to understand better how CT policies are being implemented in the UAE higher education institutions. This study examines current CT policies and how they are being implemented in pharmacy schools in the UAE. Specifically, it answers the following questions: How have CT policies been developed in the UAE local context? What are the current policies and practices governing CT at the emirate and federal levels?

2.1. Theoretical Framework

To understand how CT policies are being implemented in the UAE, the researcher draws on sociological theories of organizations, specifically institutional theories, to conceptualize the pharmacy school as an organization embedded in and affected by its broader environment. According to institutional scholars, organizations are embedded within a wider institutional environment, which shapes organizational structures and processes (Scott, 2005). The central theme of neo-institutional theory is that environments supply the blueprints and building blocks of local structures at the levels of persons, organizations, and societies (Scott, 2013). In the current study, the researcher examines how pharmacy schools in the UAE are being affected by the broader environment in which they are located, including the rapid spread of the ACPE's international accreditation worldwide.

Diffusion and isomorphism are concepts used by neo-institutional theory to describe why, how, and what led to the spread of similar institutions or convergence to the same structures. Diffusion is a concept used to explain how structures, practices, and processes spread worldwide. The result of diffusion is often isomorphism, which means "similarity in structure," and is a potential outcome of diffusion (Boxenbaum & Jonsson, 2017). DiMaggio and Powell (1983) describe the three processes that lead to isomorphism, including coercive, mimetic, and normative mechanisms that deal with political influence, legitimacy, uncertainty, and professionalization. Coercive isomorphism is the effect of institutions on other organizations through economic or political influences. Mimetic processes occur when countries or organizations copy others' policies due to uncertainty and ambiguous goals. Normative pressure is a third source of isomorphic processes that stem primarily from professionalization. Neo-institutional theory's

discussion of mechanisms of diffusion helps understand the transfer of the North American model of CT to the UAE and theorizes why and how new CT policies were imported from Western countries.

However, policy models imported from elsewhere are not always adopted entirely in new contexts. In neo-institutional theory, a gap between the legitimated model and its local enactment is called “loose coupling” or decoupling. Meyer and Rowan (1977) explain that decoupling is the gap between government policy and institutional practice, specifically when government policies are not implemented correctly by all stakeholders due to a lack of will or enactment. Decoupling is helpful for this study in explaining the existence of variations or gaps between the CT model in North America and policies and actual pharmacy educational practices in the UAE. Since institutions govern most aspects of the reproduction of CT policies in the UAE, neo-institutional theory became an apt choice for considering the various processes in designing and implementing the imported CT from Western countries.

3. Methodology

A critical comparative case study was conducted to understand how CT policies and practices are designed and implemented in the UAE, following Bartlett and Vavrus (2017). Three primary data sources were used: (i) Government portals with information on policies, procedures, and quality assurance reports related to CT. (ii) Pharmacy schools’ public websites for information on the curricula, accreditation processes, infrastructure, and other information, including public consultations. Data sources consulted are shown in Tables 1–3. This would reflect the development of CT by different stakeholders in response to the progress accomplished by Western countries about CT. (iii) Semi-structured interviews with UAE policymakers involved in creating CT guidelines. The researcher contacted the interviewees through proper channels and included a brief description of the research project and a consent form. The researcher confirmed the measures that would ensure the confidentiality and anonymity of the interviewees and asked if they had any questions related to data protection and withdrawal rules, which were explained in the initial communication. The interviews captured the opinions and experiences of actors involved in designing and implementing CT-shaping policies in the UAE pharmacy schools (Kvale & Brinkmann, 2009). The triangulation of data collected from three sources helps to validate the conclusions reached (Maxwell, 2008). Multiple resources helped demonstrate the different views about the CT experience and what the current policies and procedures for CT are producing. Particularly, the interviews brought to light the current rationales, debates, and compromises that are ongoing and are needed to implement policies for the adopted CT model.

Table 1*Main actors' websites.*

Name	Link
The United Arab Emirates Government Portal	https://uaecabinet.ae/en/details/prime-ministers-initiatives/vision-2021
Ministry of Education	https://www.moe.gov.ae/En/MediaCenter/News/Pages/h2030.aspx
The Commission for Academic Accreditation	https://www.caa.ae/
Accreditation Council for Pharmacy Education	https://www.acpe-accredit.org/
Al Ain University College of Pharmacy	https://pharmacy.aau.ac.ae/en/programs/bachelor-of-science-in-pharmacy#:~:text=The%20program%20curriculum%20offers%20a,pharmacist's%20expanding%20new%20role%20as
Gulf Medical University College of Pharmacy	https://gmu.ac.ae/college-pharmacy/
RAK Medical and Health Sciences University College of Pharmacy	https://www.rakmhsu.ac.ae/rak-college-of-pharmacy
Dubai Medical University College of Pharmacy	https://www.dpc.edu/academics.php?pageid=98
University of Sharjah College of Pharmacy	https://www.sharjah.ac.ae/en/academics/Colleges/Pharmacy/Pages/default.aspx
Ajman University College of Pharmacy and Health Sciences	https://www.ajman.ac.ae/en/pharmacy/about-the-college
Fatima College of Health Science Pharmacy Department	https://www.fchs.ac.ae/pharmacy-4/

Table 2*Meetings between different stakeholders.*

Year	Name	Link
2016	The 1 st Regional Faculty Development Workshop on Curricular Design and Delivery, March 13–14, 2016, Al Ain University of Science and Technology – Abu Dhabi Campus Al Ain University (AAU) in conjunction with the American Association of Colleges of Pharmacy (AACCP) and the Accreditation Council for Pharmacy Education (ACPE)	Conference: Al Ain University (aau.ac.ae)
2019	Experts discuss roadmap for UAE's pharmacy education at the "UAE Pharmacy Education Summit" hosted by the Gulf Medical University and organized by the Commission for Academic Accreditation – Ministry of Education, UAE, in collaboration with the Accreditation Council for Pharmacy Education (USA), and the American Association of Colleges of Pharmacy (USA). The summit was held on March 6 th and 7 th , 2019.	https://www.thumbay.com/news/experts-discuss-roadmap-for-uaes-pharmacy-education-at-the-uae-pharmacy-education-summit-hosted-by-gulf-medical-university/
2021	UAE Professional Pharmacy Graduates Competency Framework	Pharmacy Graduates Competency Framework.pdf (caa.ae)
2022	MOE holds joint meetings with higher education institutions	https://www.moe.gov.ae/En/MediaCenter/News/Pages/MoEHoldsJointMeeting.aspx

Table 3

Collaborations between different stakeholders.

Year	Name	Link
2022	Emirates Health Services partners with Fatima College of Health Sciences	https://emiratitimes.com/emirates-health-services-artners-with-fatima-college-of-health-sciences/
2023	Emirates Health Services collaborates with Dubai Pharmacy College for Girls on medical education and professional training	https://www.ehs.gov.ae/en/media-center/news/emirates-health-services-collaborates-with-dubai-pharmacy-college-for-girls-on-medical-education
2024	Strengthening collaboration between GMC College of Pharmacy and MPC Healthcare group	https://gmu.ac.ae/cop_news/strengthening-collaboration-between-gmu-college-of-pharmacy-and-mpc-healthcare-group/

3.1. Data Analysis

The data collected from the interviews were noted and then transcribed using Otter.ai software. Codes were inductively created using NVIVO and then analyzed using interpretive thematic analysis (Pope et al., 2000; Ryan & Bernard, 2003). Additionally, themes were categorized under descriptive titles that reflect the data's content and address the study's aims. Initial inductive codes included ideas such as accreditation, certification, CT, policy, change, quality, competency, framework, and legislation. The codes were then grouped into major categories, including adoption of CT policies, challenges, accreditation requirements, and implementation procedures. Additionally, the context of codes and categories was analyzed as they pertain to the implementation of CT policies by pharmacy schools, attainment of national accreditation from the CAA, and recognition by the ACPE. The researcher generated a timeline representing the dates when pharmacy schools adopted the ACPE accreditation/certification to provide an overview of how the new model of CT is being implemented.

4. Results

4.1. Quality assurance: Importing quality assurance practices

In this section, the researcher argues that the CAA played an essential role in changing the UAE's fundamental requirements for CT practices over the past years. In 2021, the CAA issued new guidelines outlining the amount of CT expected for each program, specifically stating the need for 24 and 40 weeks for BPharm and PharmD programs, respectively. Also, the document emphasized increasing the variety of applied courses that are clinically focused and assessing CT through written and practical methods based on the competency framework developed. In 2020, the CAA developed the first competency framework for pharmacy graduates that defined the professional competencies for BPharm and PharmD pharmacy programs (The Commission for Academic Accreditation, 2020). The framework consisted of four domains: foundational knowledge, essentials for practice and care, approaches to practice and care,

and personal and professional development. The increase in the number of courses was confirmed during the interviews as one participant explained: “We are increasing the number of clinical pharmacy courses. And based on the recommendation from the Ministry of Education (CAA), we are increasing the number of training hours. Now it’s 24 credit hours for the BPharm and 36 credit hours for the PharmD over nine months.” This would be covered over the periods recommended by the CAA. As for the variety of rotations, there was an increase in the number of hospital departments involved in the CT experiences provided to the students, as mentioned by one of the participants, “A lot of advanced clinical training at the hospital set up in different specialty departments like nephrology, cardiology, neurology, geriatrics, respiratory, internal medicine, so a lot of rotations are happening. According to the new curriculum, they will have good clinical training in the hospital setup.”

A second significant change the new guidelines made was to direct pharmacy schools to seek ACPE accreditation and/or certification. It also changed accreditation processes so pharmacy schools could apply for CAA renewal and ACPE certification/accreditation through a single joint review visit (JRV). Furthermore, the CAA directed pharmacy schools to consider competency-based assessment, which is a new concept being introduced that emphasizes assessing students’ learning in the clinical site during their rotations. In response, the pharmacy college documents showcased terms such as “Advanced Professional Practice Experience – competency evaluation form.” Also, this was mentioned during the interviews where one participant noted, “competencies is a new requirement from CAA.”

In addition, the CAA supported the transition to the North American model in other ways, including outlining educational guidelines and providing professional frameworks, which helped integrate and implement the new educational model of CT. For example, in 2023, the commission developed a new version of the previous manuals to produce a consolidated document called *Policies and Procedures Manual*, which contained all the policies and procedures developed by the CAA. In creating this document, the CAA utilized the experience of four US-based regulatory agencies to ensure transparency and integrity for all the main actors involved in the accreditation and licensure processes. The document directs the institutions on the application process, what is expected from the external actors involved, and what the commission’s administrative processes are.

According to the participants interviewed in this study, one of the main rationales for the change was to improve quality by aligning with global standards. This was clear in the interviews, and participants elaborated on the relationship with the ACPE, one saying:

The outcome from the joint accreditation visits is a joint decision. The program will get national accreditation and international accreditation after one review visit. ACPE accreditation is valuable, but it does not replace the mandatory national accreditation in any way, and the ACPE is another benchmark for quality assurance and is considered a second voice that supports the vision of developing pharmacy education in the UAE. ACPE accreditation is highly

encouraged. This provides a quality assurance benchmark, and it does improve certain aspects of pharmacy education as the US is pioneering pharmacy education.

Another interviewee stated:

My view for accreditation is that we do the best, we strive for quality, and in that accreditation will come as a consequence. When I tell you this program has an ACPE certified or accredited, that tells you there is a certain level of quality in your structure. The CAA are more stringent than the international accreditation. They work together, and both are strong in their requirements. The CAA probably looks more into the process in more detail, and ACPE is broader. For me, if I see a school with an ACPE and CAA together, that means the program has high standards, very rigorous programs, and rigorous levels. Yes. And that's the thing. So, anybody who knows in pharmacy education would know ACPE means there is acceptance, which is considered very highly.

Another interviewee stated the importance of the ACPE by saying:

The ACPE accreditation/certification, they have a standard criteria which the pharmacy school have to meet, then they will see what we have presented and give you feedback. So, you're going to improve, and they continue to monitor the criteria which has not been achieved.

All participants quoted above discussed the importance of pursuing ACPE accreditation as a quality marker. Most emphasized that both CAA and ACPE were needed, as they had different purposes. However, they also stressed that ACPE helped align UAE pharmacy education to international and US norms, particularly in expanding the number of CT hours, diversifying CT experiences, and complementing competency-based assessment. This showcases the commitment of stakeholders in developing pharmacy education to match global and international standards.

4.2. Implementing changes in pharmacy schools

In this section, the researcher examines how the shift to CT was implemented in pharmacy schools. In 2013, Al Ain Pharmacy School was the first to start its application for ACPE accreditation (at that time, it was called certification). Following the introduction of CAA guidelines, currently, all pharmacy schools have or are in the process of gaining ACPE accreditation, as shown in Table 4.

To align with the new guidelines set out by the CAA and gain ACPE accreditation, schools reduced the number of courses related to pharmaceutical sciences, increased courses related to pharmacy practice, and diversified the clinical departments in which students go for their CT (The Commission for Academic Accreditation, 2024). Before the introduction of ACPE accreditation/certification, the duration

of the practice period differed from one school to the other, ranging from 8 to 12 credit hours, where a credit hour refers to roughly 40–45 hours of total time, including the duration of student experience in the clinical setting, assessments, and all other activities conducted by the school such as case-based discussion and presentations.

Table 4

Timeline of the initiation of ACPE certification/accreditation (international).

Year	Pharmacy school	Program
2014	Al Ain University College of Pharmacy	Bachelor of Science in Pharmacy (BScPharm)
2017	Ajman University College of Pharmacy and Health Sciences	Bachelor of Pharmacy (BPharm)
2018	Gulf Medical University College of Pharmacy	Doctor of Pharmacy (PharmD)
2021	Dubai Medical University College of Pharmacy	Bachelor of Pharmacy (BPharm)
2021	RAK Medical and Health Sciences University College of Pharmacy	Bachelor of Pharmacy (BPharm)
2022	University of Sharjah College of Pharmacy	Bachelor of Pharmacy (BPharm)
2022	University of Sharjah College of Pharmacy	Doctor of Pharmacy (PharmD)
2023	Fatima College of Health Sciences Pharmacy Department	Bachelor of Pharmacy (BPharm)
2023	United Arab Emirates University College of Medicine and Health Sciences	Doctor of Pharmacy (PharmD)

Note. The dates are when the word “Granted” is first given, based on the ACPE website.

After gaining ACPE certification and/or accreditation, pharmacy schools have expanded the number of credit hours for their CT experiences to 24 credit hours for the BPharm programs and 36 credit hours for the PharmD. As stated by one of the interviewees, “So it’s given by the CAA for us in 2019, we changed the curriculum to 16 credit hours, but in 2021 because of CAA, they imposed this, we’ve changed to 24 credit hours.”

Although all pharmacy schools are implementing CAA policies and pursuing ACPE accreditation, the researcher found some crucial differences between how CT is practiced in North America and the UAE when probed about how CT is being implemented. First, regarding students’ CT, the current UAE policies and professional guidelines do not permit the student to provide direct patient care; instead, they only allow the student to shadow their preceptors in the clinical setting. This is a significant contrast from the North American model, in which CT encourages direct patient care, and there are policies and professional standards that allow the students to interact and provide care to their patients in different clinical settings and under supervision (American College of Clinical Pharmacy et al., 2012, American Association of Colleges of Pharmacy AACP, 2020).

Second, despite the increase in CT hours, the UAE model does not align with North America’s. For example, the North American model requires more than 1700 hands-on CT hours, while the UAE CT experience has only 1440 hours for PharmD and 960 for the BPharm. The ACPE guidelines for pharmacy schools in North America require 1740 hours of CT conducted in 44 weeks. The introductory CT experience

would include 300 hours covered through 8 weeks, and the advanced CT experience covers 1440 hours undertaken in the last years of the pharmacy program over 36 weeks. The same practice is in the Canadian experience, where the advanced rotations are done in six slots of five weeks each in different hospital settings, and involving direct patient care, with at least four of the slots required to have direct patient care (Accreditation Council for Pharmacy Education, 2024; The Canadian Council for Accreditation of Pharmacy Programs, 2018).

5. Discussion

This article examines how the UAE developed its pharmacy education by importing the North American model, focusing on the role of CT practices. As explained earlier, the CAA directed all pharmacy schools to seek and obtain international accreditation for their programs from leading global accreditation bodies such as the ACPE. In terms of policies, a clear finding emerged in the interview data: UAE pharmacy schools adopted North American models, including ACPE accreditation, to improve the quality of their educational practices and programs. It was clear that one of the goals of international accreditation was to improve their standards and establish legitimacy for their graduates. Moreover, the collaboration established by the CAA with the ACPE provided a roadmap for pharmacy schools to develop their programs and accomplish national and institutional goals, which was articulated during the interviews and evident from the number of credit hours stated.

Institutional theory, specifically the literature on mechanisms of diffusion, becomes helpful in explaining the diffusion of the ACPE model of CT to the UAE. Once the idea of advanced CT was adopted and the ACPE accreditation/certification was decided by UAE policymakers, they implemented CT mandates for all pharmacy programs to follow. As a result, all pharmacy schools in the UAE adopted CT policies – the clear isomorphism toward CT in the UAE can be understood as occurring through a coercive mechanism, namely the regulatory authority of the CAA. This finding on the coercive role of government policies in bringing about curricular change aligns with other studies that have found the same (Dumitru et al., 2014; Ozturk, 2020).

In the UAE context, policy–practice decoupling becomes clear because the aim of adopting the North American model was to provide the healthcare system with pharmacists who have the clinical capability to conduct advanced and interventional roles in different settings and departments. What is evident from the interviews is that pharmacy schools have implemented the North American model to the best of their ability, based on the current rules and professional legislations instituted by the state. However, when comparing the CT model in the UAE with the North American model, decoupling becomes evident in students' involvement in direct patient care and the number of hours in advanced CT (Council on Credentialing in Pharmacy, Albanese, & Rouse, 2010).

In addition, the current guidelines do not give the students the autonomy to develop their professional identity in attending to different problems during their clinical practice, in contrast to students' experience in North America, where the ACPE standards illustrate different mandates to enhance pharmacists' professional identity (Garza et al., 2021; Kellar et al., 2023; Mylrea et al., 2019; Nelson et al., 2021). There is a lack of guidance and support about students' interprofessional experiences in different clinical settings, unlike the North American model, where emphasis on the roles and responsibilities of different healthcare professionals in a clinical setting is articulated and agreed upon by stakeholders (Maerten-Rivera et al., 2021; Murphy et al., 2018). As part of its growth over the past decades, the North American model needed to establish many new legislations and educational guidelines through coordination between multiple stakeholders representing the professional pharmacy bodies, educational institutes, and regulatory authorities.

Second, the role of faculty in the CT programs is essential. The faculty oversees all the processes related to students' learning in the clinical setting and works closely with preceptors to deliver the required curriculum and conduct the necessary evaluations. There needs to be new legislation that gives the same professional and educational privileges as their counterparts in North America, such as the right to practice and teach concurrently. This authority would enhance students' experience because faculty can share and showcase their experiences simultaneously and be in touch with the daily professional intricacies and needs (Austin & Gregory, 2006). Also, when the faculty has the legal grounds to teach and practice simultaneously, this would support students' competency-based assessments, similar to the North American model. The current situation is that there is a licensed pharmacist who is the onsite clinical setting evaluator, and there is a member from academia who assesses the students for the off-site activities required by the curriculum, such as case presentations. This situation impacts the assessment process in many ways and is an additional cost to the program. The faculty is an essential element to the successful transformation of the North American model and need more support from the state not only in the form of local CPDs as workshops and seminars, but also funding for international educational experiences abroad to help develop their skills (Enderby et al., 2021, Tolleson et al., 2024).

Third, the competency framework established is a step in the right direction; however, it thus far does not list any required professional duties or professional attitudes of practice compared to other Western competency frameworks (National Association of Pharmacy Regulatory Authorities, 2014). For example, what role should pharmacists play in the therapeutic management plan, and what professionalism must the pharmacist demonstrate in practice? What is the role of pharmacists in respecting different cultural needs when asked? Since the state is the main body that decides on professional pharmacy legislation, the state, through the Ministry of Health and Prevention, needs to illustrate what professional duties a pharmacist in different hospital settings and community pharmacies would need to conduct or should be able to perform. Accordingly, the state would need to conduct different dialogues in collaboration with the main actors,

such as the Ministry of Education, pharmacy schools, and professional bodies, such as the pharmacy society, to identify the main competencies required to fulfil such duties. This would enable pharmacy schools to tailor their programs and help students accomplish the professional competencies required. The continuation of interactions between the government, academia, and professional associations is essential during the upcoming period to decide what legislation is needed to optimize the CT experience that best serves the imported North American educational model. Further support from the state regarding professional legislation and laws is required to help advance and develop the North American model for CT in the UAE pharmacy school's curriculum, which would, in turn, help progress the role of pharmacists in the profession. For example, the findings point to the need to introduce regulations and professional standards of practice about the professional role of pharmacists. Also, the regulations must enable the pharmacist to collaborate with other healthcare professionals and participate in the healthcare team responsible for the patient's well-being to improve the quality of care provided in different settings.

6. Conclusion

The UAE is developing various professional guidelines for pharmacy and has supported the establishment of pharmacy schools to enhance the pharmacy profession. Pharmacy education plays a vital role in meeting the global shifts in the pharmacy profession, which are currently undergoing significant changes. CT is at the heart of this evolution and needs support from stakeholders in providing the necessary legislation and professional guidelines to help implement advanced CT practices for pharmacy students. The changes would help advance graduates in their careers, not only on the national level but also on the international level.

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Competing Interests

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Author Biography

Amad is an experienced and dedicated educator who is well-versed in innovative teaching pedagogies and teaching students at different levels, coming from diverse backgrounds. He has over 15 years of experience as a practicing pharmacist, a university educator, and a research scholar spanning three countries: Iraq, the United Arab Emirates, and Canada. Amad is pursuing a second PhD in Higher Education in Health Professions Education at the University of Toronto, where his research focuses on the role that international accreditations play in clinical training practices. In his study, he views pharmacists as frontline public health professionals and seeks to link pharmacy, clinical training, and public health. His research aims to support the development of robust training systems for healthcare professionals.

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