A conceptual framework and research approach to identifying and analysing challenges to the advancement of the pharmacy profession: a case study

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Abstract

Background: Pharmacists and healthcare professionals are faced with increasing and changing health care needs around the world. In order to meet these demands, they are required to continuously upgrade and develop their professions.Reprofessionalization drives are therefore crucial to the successful delivery of health services, but traditional theories of the professions provide little practical guidance to evaluating the overall status of a profession.

Objective: This study proposes a new conceptual framework of three interrelated professional sectors: education, regulation and practice, and uses it to identify and analyse challenges facing the pharmacy profession in Jordan.

*Methods:*A multiple-method qualitative study comprised of semi-structured interviews and focus groups was conducted in Amman, Jordan. To explore and identify the challenges, apurposively recruited cross-sector sample of fifty-three key informants, stakeholders and pharmacists were interviewed. Interview transcripts were translated and then analysed using QSR NVivo 10. Thematic analysis identified eight main challenges facing pharmacy in Jordan. The original participants were then invited to participate in focus groups, the purpose of which was to validate the interview findings, map them against the conceptual framework and discuss recommendations for development.

*Results:*The eight validated challenges span the following areas: graduates preparedness for practice, pharmacy education accreditation and quality assurance, pre-registration requirements, workforce development, workforce planning, remuneration and wage rate, pharmacy assistants, and PharmD pharmacists. Focus group participants used the framework to map each of the challenges to the primary sector-to-sector disconnect that they perceived to explain it. A list of recommendations addressing each of the challenges was also devised.

*Conclusions:*The framework was found to offer valuable insight as an explanatory and diagnostic tool in policy-relevant research. By emphasizing the processual and contextual nature of reprofessionalization, the framework presents an alternative approach to traditional theories. This

study also raises important questions regarding the status of pharmacy in Jordan and aims to provide guidance for local development and much-needed reprofessionalization drives.

Keywords

Conceptual framework; profession; reprofessionalization; health profession; pharmacy profession; pharmacy; pharmacy education; pharmacy regulation; pharmacy practice; pharmacy policy;Jordan; Jordanian pharmacists

Introduction

Sociological theorists have long been interested in the theory of professions and what distinguishes them from other occupations. According to an early idealistic 'normative' approach to defining a profession, values and ethical codes give the professions their key stabilising function in society[1,2];but this categorization of an occupation –largely based onunsubstantiated privilege granted by society – was not deemed a sufficient measure for discriminating between occupations.[3,4]The argument was therefore further expanded by the 'trait' approach to include, in addition to a code of ethics, a combined range of defining characteristics or traits (e.g. self-regulation, training, licensing, examinations, and professional associations)[5,6]; thevaried interpretationsof the trait approach and its arbitrarily setlists of criteria explainits failure to produce a consensus.[4] Interactionist views,on the other hand, examine the dynamics of professionalism as a form of service provision rather than a set of traits; this 'occupational control' approach argues that professionals deploy exclusive services to exert market control over their occupation.[3,7,8]Freidson proposed that in addition to this occupational control or 'dominance', 'autonomy'– or the ability to control one's workactivities –is also needed to giveprofessional power to an occupational group.[9] Sceptics, however, attribute the narrowing of knowledge gaps and the rise of new and highly-specialised occupations to the decline of these professional powers.[10,11]Within the theories of professions, there appears to be no unified holistic approach to what constitutes the professionalization of an occupation – or the process of it becoming a profession.

Professionalization and pharmacy

Throughout these ongoing disagreements, debates and theoretical evolutions, the profession of medicine – firmly rooted in the historic Hippocratic Oath – has always been "the example of choice when sociological theories about the professions were discussed".[12]As the division of healthcare labour progressed, the professionalization of pharmacy and other healthcare occupations beganto increasingly feature in such discussions.[3,13,14]The story of the professionalization of pharmacists is set within the evolutionary stages of pharmacy practice models. Manufacturing, compounding and distributing medicines were key features of practice in the 19th century; the establishment of sale and

supply restriction laws, pharmacy schools and representative associations across Europe, the U.S and Asia signalled the start of professional regulation, official representation, and organized education of pharmacy.[15] The large loss of pharmacists' manufacturing and compounding roles to the advent of the 20th century pharmaceutical industry was coupled with the consequential loss of their social purpose as compounders and distributers; hospital pharmacists had more varied activities but as in community practice, the emphasis shifted to the 'product'.[16] These events coincided with pharmacy beginning to feature in discussions- albeit with negative connotations- on sociological theories of the professions.

Despite pharmacists gaining occupational control over their service through preventing the unqualified from dispensing medicines, the pharmacy profession has historically been considered subordinate to the medical profession and its professional status has often been questioned. In his 1964 essay,'The Professionalization of Everyone?', Wilensky critically examines the "heroic struggles" of some occupations to join the rank of "clearly recognized and organised" professions and describes pharmacy as a "borderline" profession ancillary to medicine.[13] Medical sociologists Denzin and Mettlinsimilarly argued for the "incomplete professionalization"of pharmacists and partly owed their allegedly failed "attempt to turn themselves from ordinary occupations into the prestigious groupings called professions" because of their lack of control on medicine, their social object.[17]Freidsonalso agreed by concluding that pharmacy is "firmly subordinated to medicine"due to the inability of pharmacists to diagnose diseases and prescribe medicines,which compromises their professional 'autonomy' according to him.[9]However, the provision of drug information and medication counselling by community pharmacists and the addition of clinical pharmacy to hospital settings would eventually redefine the essence of practice and somewhat neutralise the negative effects of the manufacturing industry.[16]These developments formed the backdrop to the introduction of Hepler and Strand's concept of pharmaceutical care.[18]Shortly after, Dingwall and Wilsonfirmly reject Denzin and Mettlin's claims,counter-arguing that pharmacy's social object is not the medicine itself butrather its median role for social change.[19]Despite these developments, the 'quasi'-status of pharmacy as a profession –as defined by the traditional sense of the word – still holds in contemporary literature.[20,21]

Towards a new approach

The field of health professions is not static and shifts continuously as health care systems and the role of health care professionals develop and adapt over time; and many of the assumptions underlying the traditional professions theories do not survive the dynamic climate of health care.[4] Pharmacists are continuously faced with increasinglydemanding and complex healthcare needsand advancing technologies,forcing them to constantlyre-evaluate their current practice modelsand envision future ones.[22]According to Birenbaum[23],these continuous efforts to upgrade and develop the status of pharmacy within changing health care environments is referred toas reprofessionalization.Reform drives in the name of reprofessionalization have become a recurring feature of literature; the topic is examined through several lenses such as extending practice roles[20,24,25], advancing educational models[26-28], and reviewing existing regulatory systems.[29,30]Birenbaum concedes that theoretical frameworks "fail to recognize the interactive and contextual nature of the development of the professions".[23]According to Annandale[31], the relationship between theory and research is also reciprocal where "extant theories gradually fall out of fit with societies as they change and new approaches are called for". This presents a structural problem for research aiming to identify challenges affecting the advancement of a profession andto assess if it's time to reprofessionalize an occupation, without relying on or associating withephemeraldefinitions that supposedly determinesits professionalization. The paper presents an alternative approach to the traditional theories of the professions and professionalization. It describes a simple conceptual framework that redefines what constitutes a professional arena and test it in a case study conducted on pharmacy in Jordan.

The conceptual framework

The conceptual framework describes that in any professional arena, there is a dynamic and complex interplay between the education, regulation and practicesectors. The framework was developed by author Michael J. Rouse in the early 2000's as a result of his work with the Accreditation Council for Pharmacy Education (ACPE), the U.S. national accreditation agency for pharmacy education. The conceptual framework, used widely in presentations, was intended to depict the separation of the entities responsible for education, practice and regulation, but at the same time the dynamic relationships that exist between the sectors, working in collaboration to advance the profession. It was first published in Version 1 of the Global Framework for Quality Assurance of Pharmacy Education – adopted by the International Pharmaceutical Federation (FIP) in 2008. FIP is the largest global body representing pharmacy and pharmaceutical sciences and whose goal is to support the development of the pharmacy profession. Figure 1 illustrates the relationship between the three principal components of the framework. 'Practice' refers to the sector of the profession that provides a broad range of services to society in and from a variety of settings. 'Regulation' refers to the sector – within and/or outside the profession – that determines and enforces the statutory requirements for the organization and practice of pharmacy. 'Education' refers to the sector of the profession that prepares the members of the pharmacy workforce for practice; i.e. both pre-service education and continuing education (CE) /continuing professional development (CPD).

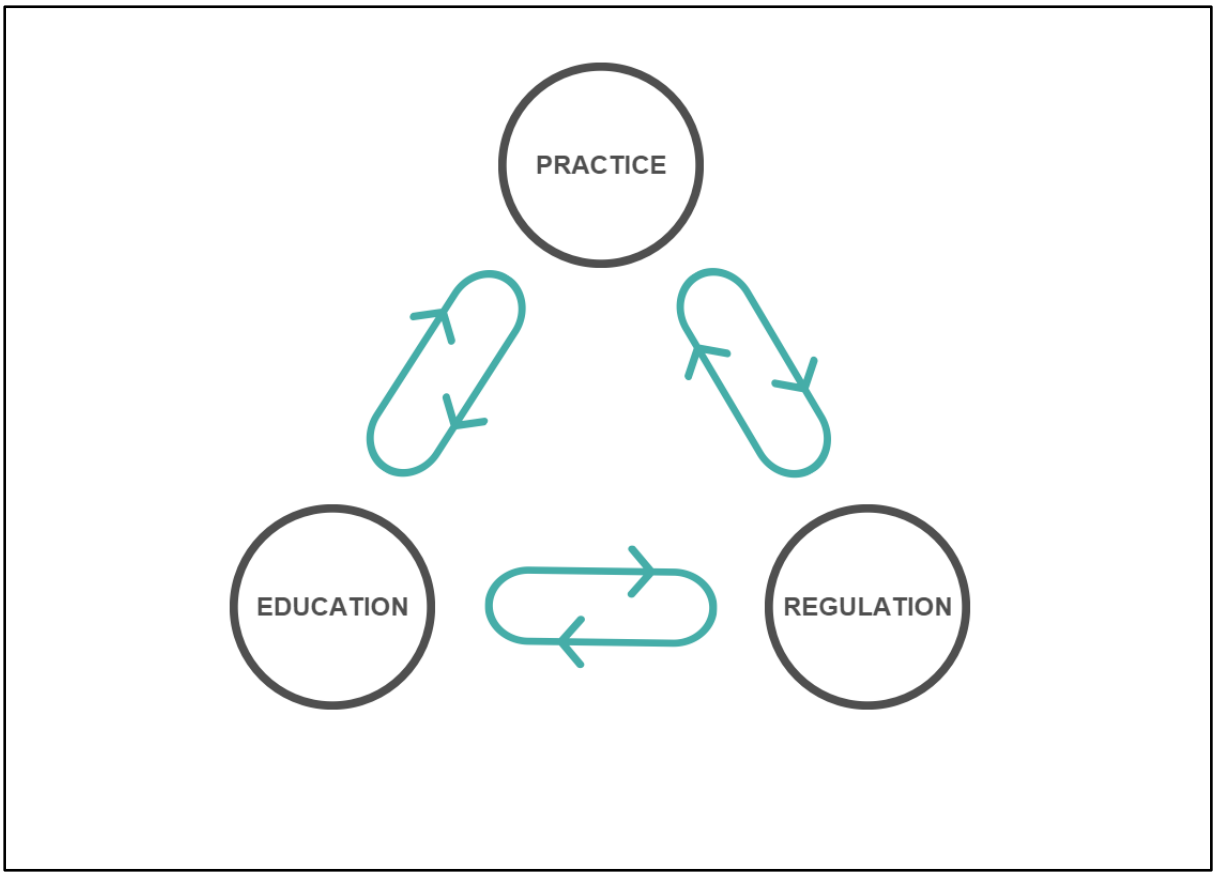

Figure 1 A conceptual framework depictingthe dynamic relationships between practice, regulation and education. (International Pharmaceutical Federation 2014, adapted with permission)

The framework depicts that there should exist a dynamic relationship between its components or sectors – even a 'tension'– constantly driving change and advancement. The separation also provides for 'checks and balances' whereby a 'push' from one side can be checked (even opposed) by the other sector, with some positioning back and forth until something that works in the best interests of the profession and the public becomes the agreed 'end point'.The possible negative impact of a lack of separation (the absence of checks and balances) between these three sectors may lead to stagnation or conflict-of-interest; 'self-regulation', for example, can be used to illustrate this effect and will be discussed in this paper.At the same time, however, it is important to ensure that at no stage do any of the separations depicted get too wide, thereby creating a disconnect, which may lead to dissatisfaction or frustration. If, for example, pharmacy educators teach for a model that is not supported by practitioners and/or regulators, graduates may become disillusioned if the practice or regulatory environment does not allow them to practice in the manner conveyed by the academic programme.

Developments and innovations in any of these professional domains may lead, drive or require an appropriately measured response from another, but there must always be that dynamic interplay of 'checks and balances'.Failure to make needed changes by one sector can – and should be – challenged by the other sectors in the profession. For example, changes in practice needs may force appropriate changes to be made in education, and new regulations will impose new effects on the practice environment. A proper push-pull fit between these professional domainsis crucial to not only maintaining the integrity of the profession, but to also advancing it. Similarly, any disconnect between them destabilises their harmony and may prove, to varying degrees, detrimental to the overall state of the profession.Existing challenges hindering the advancement of a profession may also be better understood by tracing them back to their corresponding 'disconnected' axes;for instance, noncompliance to dispensing laws can be traced to a primary disconnect between 'regulation' and 'practice' owed tothe weak implementation of dispensing regulations in community practice. This additional diagnostic or formative feature of the framework allows it to be a practical analytical tool in policy-relevant prescriptive studies.

The pharmacy scene in Jordan

Modern pharmacy practice in the Hashemite Kingdom of Jordan – or Jordan –can be traced to the 1930s and the first independent community pharmacy opened in 1946.[32] The Jordan Pharmaceutical Association (JPA) was established in 1957but the JPA Law 1972 was the primary legislation that enabled its present role asa statutory regulatory and registration body;in addition, the JPA also acts as the principal professional body representing, promoting and developing the pharmacy profession in Jordan. The regulation of pharmacy in Jordan is a complex amalgam of statutory frameworks carried out by separate entities but one that can be broadly categorized as state-sanctioned self-regulation.[3]Pharmacy practice is governed by the JPA's Drug and Pharmacy Law 2001and the Ministry of Health's Public Health Act 2008, Narcotic Drugs and Psychotropic Substances Law 1988 and various sets of statutory rules. The registration of pharmacy premises and the inspection of medicines and medical devices are the administrative responsibilities of the Ministry of Health and Jordan Food and Drug Administration, respectively. The JPA defines the pharmacist as "any person

holding a degree in pharmacy from an accredited university in the Kingdom, and registered in the pharmacists register with the Association and authorized by the Ministry to practice this profession".[33] Registration with the JPA is thus mandatory and pre-registration requirements include the successful completion ofan accredited pharmacy degree, 1440 hours of training and the JPA's licensing examination. There are currently 15 universities in Jordan that offer the five-year Bachelor of Science (B.Sc.) in Pharmacy and two of them also offer a six-year Doctor of Pharmacy(PharmD) degree;the B.Sc. is considered the main national programme, but both degrees qualify as an entry requirement and are accredited by the Higher Education Accreditation Commission (HEAC).[34] To maintain their registration status, pharmacists are required to pay annual fees to the JPA. There are no mandatory CE or CPD requirements of pharmacists, nor are there any post-licensure revalidation mechanisms in place. The majority of pharmacistswork in the private sector[35], and the various practice settings in Jordan include community pharmacies, hospital pharmacy, the manufacturing industry, pharmaceutical wholesalers and distributers (locally referred to as drugstores), academic institutions, professional and regulatory bodies, research and consultancy companies as well as other governmental and intergovernmental organisations.

At face value, pharmacy in Jordan is thriving: (1) Jordan is aleading global pharmaceutical industry exporter andregional medical tourism destination[36,37];and (2) in the decade leading up to 2015, the number of community pharmacies increased by 50%, exceeding 2200 pharmacies,(3) the total number of licensed pharmacy schools have doubled bringing the total to 15 (5 public and 10 private), and (4) the active workforce has also nearly doubled toabout 12,000 pharmacists.[32,38]Underlying these quantitative growths, concurrently published literature on pharmacy practice paints a less bright picture and reports a number of challenges. Despite community pharmacies being considered the most accessible health care facility[32],pharmaceutical care provision in Jordan continues to suffer from limitations.[32,39]Community pharmacists fully support the concept of pharmaceutical care,but a number of barriers to its implementation have been reported such as inadequacies in pharmaceutical care training and poor physician-pharmacist communication.[40]Despite the introduction of the patient care-oriented Pharm D programme in 2000 , these concerns are also echoed in the hospital settingwhere the

importance of the role of pharmacists in hospital settings is still questioned among physicians in Jordan who view pharmacists within the traditional role and resist accepting or recognising newer pharmacy clinical services.[41] The negative dynamics of the pharmacist-physician relationship have also been identified as a factor resulting in stress and low job satisfaction among a cross-sector sample of pharmacists;other factors were reported to be the lack of formal career progression and development due in part to the absence of CPD/CE.[42]Additionally, a poor public image of the pharmacist[32], limited pharmacist-patient interactions[43],and deficiencies in pharmacists' communication and patient counselling skills have been found.[44]The non-strict enforcement of regulations in pharmacy practice has also been documented;existing classification and dispensing laws are not strictly enforced and, as such, patients can buy any medication without prescription – with the exception of controlled narcotics and major tranquilisers.[32]One study also reported that it is not uncommon to find unsupervised pharmacy assistants unlawfully running pharmacies and supplying medications to patients.[45]This absence of strict enforcement of dispensing laws not only sheds light on a regulations problem, but also means that pharmacists and pharmacy assistants are entrusted with an unofficial but common responsibilityof 'prescribing'that is outside of the realm of their expertise.[46]This example demonstrates thatthese and other unknown problems found in pharmacy in Jordan are not merely a professional and status concern, but are potentially detrimental to the health and safety of the public.Therefore, understanding the underlying patterns leading to these issues as well as identifying any other challenges in Jordan is a priority area for investigation.

Purpose of this study

The present study is the first attempt at filling the gaps by identifying the key challenges that are currently hampering the advancement of the pharmacy profession in Jordan. Using Jordan as a case study, the authorsincorporated the conceptual framework into the study's design and analysis, and examinedits value as an explanatory and formative tool for understanding the uncovered challenges and devising needs-based strategies to address them. The authors use the experiences from theirmulti-method, participant-centric research approach to discuss the framework's benefits and implications for reprofessionalization drives by researchers and stakeholders.

Methods

Study design and setting

Qualitative research generates rich information and is ideally suited for exploratory studies of under-researched topics such as this one[47], and multiple-methods are particularly recommended for policy-relevant social pharmacy research.[48]This qualitative study was conducted in Jordan's capital city, Amman, and adopted a multiple-method approach comprised of semi-structured interviews and focus groups. The interviews were conducted between October 2013 and May 2014 and their purpose was to explore and identify the challenges facing pharmacy in Jordan. The focus groups were carried out in May of the following year; original participants from the interview stage participated in the focus groups to validate the interview findings and map them against the conceptual framework. LRB recruited participants, collected all data and conducted the validation focus groups. LRB, CL and SM were involved in the analytical process. This project received approval from the 'anonymised'.

Study participants

A sample of fifty-three key informants, relevant policymakers and pharmacy professionals were recruited. A purposive snowballing sampling approach was employed to enhance sample coverage and facilitate access[49], the latter of particular pertinence in a culture that relies heavily on social connections and influential intermediaries and where informal and formal gatekeepers play a crucial role in recruitment.[50] The participants spanned all sectors of Jordanian pharmacy practice: community pharmacy (both independent and chain), hospital pharmacy, the manufacturing industry, the academic sector (i.e. pharmacy schools), professional and regulatory bodies (e.g. JPA), research and consultancy companies (e.g. clinical contract research, training and development), and governmental and intergovernmental organisations (e.g. Ministry of Health, HEAC). Table 1 lists the number of participants by sector. Recruited participants included individuals with senior and middle management positions (e.g. business owners; sector representatives; deans) as well as employees (e.g. recent graduates; practitioners; public servants). All but 7 of the participants are pharmacists by background and 29 (55%) of them female.

Sector	Number of participants
Community	7
Hospital	3
Manufacturing industry	3
Wholesale and distribution (drugstores)	12
Academia	8
Professional and regulatory bodies	5
Research and consultancy	6
Governmental and intergovernmental organisations	9
Total	53

Table 1Sector distribution of study participants.

Data collection

The data was collected by the lead author, LRB, a Jordanianpharmacist and doctoral researcher who received training in qualitative data collection. Potential participants were initially contacted by phone and invited to take part in the study. Arrangements were made with those who agreed and the interviews were usually conducted at the participants' place of work. Before commencing the interview, every participant was given aninformation sheet about the study and a consent form to read and sign, respectively. The interviews were audio-recorded and field notes were also taken. The interviews were semi-structured and participants were asked open questions about challenges they face in their respective practice area(s), their views on pharmacy education and graduate preparedness for practice, and their opinions regarding the current state of the profession and its leadership (see Appendix 1). A semi-structured guideprovided a balance between respondent freedom and interviewer control and was ideally suited for the exploratory aims of the interviews.[51,52]To maximise her reflexivity, LRB completed a self-reflection formalmost immediately after eachinterview;the researcher critically reflected on her interaction with every participant noting her thoughts, feelings and decisions as researcher and interviewer and acknowledging her centrality to the research.[53,54]In providing an auditable record of the research process, such reflective practices are usedto maintain transparency and methodological rigour.[55,56]Reflective writing alsohelped in detecting re-emergent themes and assisted the researcher in recognisingtheoretical saturation and eventually determining sample size.[57]The point of saturation, or when no new information was obtained from data collection, was reached after the 50th interview; no new ideas emergedfrom thefollowing three interviews.[58]

Data translation

The interviews were conducted in the source language (Arabic). Because LRB was the only one in the research team to share the same language and culture as the participants, translating the interviews to the target language (English) wasnecessary for the involvement of the rest of the team in analysing the data and disseminating the findings. Effective translation in cross-language research is critical to the interpretation of the data and integrity of the results and steps to ensure the conceptual equivalence of the translations were taken.[59,60]Interview recordings were transcribed verbatim by an assigned local transcriber who is familiar with pharmaceutical terms;LRBchecked the transcriptsfor accuracy before forward translating them (from $Arabic_1$ to $English_1$). A translation lexicon or glossary of key and recurring words was devised to ensure consistency throughout the process[59];it was certified by a local professional translator. Back-translation is one of the most common and highly recommended methods of evaluating conceptual equivalence between source and target versions.[61,62]Therefore ten full transcripts of the translated interviews were randomly selected and back-translated (from $English_1$ to $Arabic_2$)by an independent bilingual pharmacist and researcher; at least one interview was selected from every sector group.LRB and the back-translatorcompared the back-translations ($Arabic_2$) with the original transcripts ($Arabic_1$) to assess whether there was any loss of equivalence or misinterpretation during theintial translation.After conducting the review, both the researcher and back-translator found no discrepancies and agreed that the back-translations accurately reflected the original meanings of the text. The researchers (LRB, CL, SM)decided that there was no need for further translation verification measures.

306 ***Data analysis***

307 The translated interview transcripts were analysed thematically using the qualitative data analysis
308 software NVivo 10. The thematic analysis followed the six steps laid out by Braun and Clark: (1)
309 familiarizing oneself with the data, then (2) generating the initial codes, followed by (3) searching for
310 themes, (4) reviewing them, (5) naming and defining them, before finally (6) writing-up the
311 report.[63]Initial coding of the entire data set was carried out by LRB who has familiarized herself with
312 the interview data through translating them, checking the transcripts against the audio-recordings,
313 reading and rereading the transcripts, and noting down her initial ideas. The initial codes were
314 produced in an inductive manner, meaning they weredriven by the data and not by any pre-
315 existingcoding frames or theories.To reduce the risks of subjectivity, multiple-coding was
316 employed[49];CL and SM separately analysed segments of text and checked them against the initially
317 assigned codes to identify any disagreements and to further refine the coding framework. LRB
318 collated the codes into potential themes, and the three researchers met on several occasions to discuss,
319 review and name the themes; a thematic map was generated and used throughout these discussions to
320 illustrate the themes and their relationships and check whether they work consistently with coded
321 extracts and the overall data set.During the last comparison of analyses, the researchers all agreed
322 upon a final set of eight themes, with each theme representing a separate challenge area. The
323 challenges were summarised in preparation for participant validation.

Data validation and mapping

'Participant or respondent validation/follow-up', 'backtalk' or 'member checking': all describe the process of "cross checking research findings with participants".[49]Participant validationhelps maintain the analytic rigour of the research process, refine explanations, display participant respect, and ensure the continuity of stakeholder-engagement (especiallysignificant in policy-relevant research sensitive to de-contextualisation).[57,64-66]Participant validation was carried out in this study to primarily assess whether the researchers' interpretation of the data are true to the participants' perceptions, thereby increasing the interpretive validity of the study.[67] Individually reporting results to participants presented several time and resource constraints so the use of focus groups was deemed the most logistically effective and methodologically complementary form of generating collective participant feedback. Email invitations were sent to all 53 participants inviting them to participate in the focus groups. A total of 13 (25%) participants took part in two focus groups(n_1=6, n_2=7); both sessions ran in the same order (see Appendix 2). LRB presented and described the 8 challenges.Every challenge was then discussed among the group to validate its accuracy in terms of whether they think it fairly and reasonably represents the situation as they perceive it.[68] Both groups validated the identified challenges and agreed that no changes, omissions or additions were needed. Participants were then asked to take part in an exercise in which each of them was handed a printout sheet with an enlarged image of the conceptual framework (identical to that in Figure 1.1). A numbered list of the challenges was displayed on a large screen. They were then asked to assign each challenge to the axis they believed reflected the primary disconnect leading to it. To ensure their understanding of the task, several fictional examples were presented before commencing the exercise. This form of mapping offered a creative and participant-centric means to ground the participants' perceptions within the framework.[69] After completing the activity, the researcher facilitated a group discussion in which the participants' answers on each challenge were discussed and debated.Additional attention and time was especially given to answers contradictory to the majority. Discussions continued untilunanimous agreement was reached on the most suitable answer, and complementary solutions and recommendations were proposed and collated. A secondary aim of this participant validation process

was to allow the participants to raise any relevant professional issues or updates that may have developed in the time elapsed since their interviews. Some participants shared new information about the scene in Jordan (e.g. upcoming law changes), but no new major themes emerged and the list of challenges was retained.

Results

Interview findings

Thematic analysis of interview data resulted in eight major themes describing the following challenge areas: graduates preparedness for practice, the quality assurance and accreditation of pharmacy education, pharmacy pre-registration requirements, workforce development, workforce planning, pharmacist remuneration and wage rate, pharmacy assistants, and PharmDpharmacists.

Challenge area #1: graduatespreparedness for practice

The participants, and particularly employers from across all sectors, reported that recent pharmacy graduates – or newly registered pharmacists – are generally unprepared for practice, citing a gap in implementation between theory and practice as the main factor. According to a training and development manager of a pharmacy chain: *"There is a very huge gap between here [practice] and there [education], and there is a gap between pure scientific information and translating it into benefits and features for the customer."*Onemanager at a wholesale and distribution company similarly describes this issue: *"There is no link between science and business. That's very clear and we can see this when we conduct our interviews [with graduates]."* A newly registered pharmacist who works in wholesale and distribution also captured this: *"They [pharmacy schools] need to incorporate practice more which is a very important aspect for pharmacy."*There is a general consensus that this issue is mainly linked to the quality of the taught curricula which was described as being traditionally science-focused and largely theory-based. Employers also reported a number of skills that they perceive as generally lacking from the graduates they come across. All sectors complained of gaps in interpersonal skills (e.g. communication skills) as well as analytical and critical thinking skills.In community, patient counselling was also lacking. The industry and regulatory affairs sectors mainly report shortages in practical knowledge in laboratory analytical skillsand technical knowledge on basic regulatory and drug registration concepts, respectively. A wholesale and distribution sector representative illustrated this: *"The skills or knowledge that the student acquires in this field [regulatory] is very superficial. It doesn't give room for the student, after five years of university- and five years is a long time- to even know what his or her future career specialty or main orientation is."* This additional aspect of the lack of career direction or awareness of the different pharmacy sectors was also reported by a number of the participants who claim that this explains why many new pharmacists often switch between a range practice settings and jobs upon entering the market.

Challenge area #2: pharmacy education accreditation and quality assurance

Academics highlight a different challenge in the field of pharmacy education. Pharmacy schools deans describe the current curricular accreditation standards imposed by HEIAC to be restrictive with a science-centric scope, resulting in rigid,science-based curricula.This effect was described by a private school dean as: *"There are decent systems in higher education that the Accreditation Commission put to conserve the reputation of higher education and preserve these specialities. Unfortunately, on the other hand, there are some restrictions that hinder the freedom of the way deans and stakeholders should think about developing the programmes.*" There is also a reported variation in the way private and public schools undergo accreditation and quality assurance (QA); with private schools apparently subject to stricter processes while regulations are somehow more 'relaxed' for their public counterparts. Another private school dean reported this as: *"If I want [the curriculum] to be unique in anyway, I can't because the accreditation won't allow me. So the accreditation standards are enforced on me and the other schools, but the public schools are exempt for an unknown reason."*A HEIAC spokespersoncountered this: "*We enforce our standards on everyone but the public universities have excuses, one of which is the admission system they have. The [student intake] numbers come to them through the Ministry of Higher Education, so the numbers are enforced upon them. For example, if the university requests 2000 students, they are sent 4000. So how can I apply the same restrictions?"* Another topic discussed by participants, both academics and non-academics, was The Pharmacy Assistant Bridging Programme (PABP). The PABPallows a Pharmacy Assistant Diploma (PAD) holder to enrol into a Bachelor of Pharmacy programme. Participants reported that the admission processes of the PABP and PAD arecommonly known to be unregulated, allowing individuals who did not meet the stipulated entry requirementsto enter the programmes and eventually the profession. Some participants view the entire PABP as a threat to the profession; one drugstore owner expressed this strong opposition to it as: *"They need to stop the Bridging! Why can't the nurse study further and become a doctor, or the surveyor an engineer?!Why are they allowed to become pharmacists?!"*

Challenge area #3: pre-registration requirements

Participants expressed alarmed concern about the organization and regulation of pre-registration training.One chief operating officer of a pharmacy chain described this as: *"Training is the number one major issue on which there is hardly any focus and there is barely any regulation. It's extremely unorganized and there is no follow-up and it's harming them [the trainees]."*Others described how it is widespread practice – and common knowledge –for pre-registration trainees not to complete their mandatory 1440 hours of training. Trainees are required to provide evidenceto the JPA that they've completed their training to be able to register, and this is usually done by providing a signed statement (or more if conducted in more than one site) from the supervising pharmacistconfirming the number of hours the trainee completed. It was reported that the forging of training statements is common practice. One recent graduate who works as a community pharmacist illustrates this: *"Some people tell you: 'Don't worry, I can arrange it [the statement] for you.' So you say to yourself, why should I do the training? They need to be more strict when it comes to pre-registration training; because no one trains. None of us trained. Because if we had actually trained, we would have entered the workplace with some understanding; it would have made a difference.*" This is not a new phenomenon; a vice president of a drugstore reflected: "*Training should be more controlled. I remember even back when I graduated the training wasn't so controlled and anyone can sign a training slip without actual training, to be honest. We just had to get a pharmacist's signature.*" There are currently no official training frameworks or validation mechanisms in place; but a JPA spokesperson explained that the introduction of the pre-licensing examination in 2011 was in part a responsive measure to this training issue and is its aim is to filter out unqualified pharmacists: *"Whether they trained or not, whether the statement is real or fake, if they pass the exam, then at least they know something. They must have walked into a pharmacy during their lives."*The examination is not viewed as a rigorous entry requirement though.According to a managing director of a drugstore, *"It's a very simple one. It should be a proper exam, one that would require them to revise everything they've studied. Because you want to guarantee that those who enter the market are of quality and qualified. Other than that, the reputation of the profession will be ruined and so will be the market."*

Challenge area #4: workforce development

The fourth theme emerged from an issue that was commonly recurring in the interviews: the complete absence of mandatory CPD and/or CE requirements of pharmacists,as well as of any post-licensure revalidation systems. A senior pharmacist and researcher from the Ministry of Health (MoH) described this as: *"There is no national mandatory continuing pharmacy education system. We have no re-licensing processes. My license could be 50 years old without a change. The medics on the other hand have a Higher Medical Council that regulates continuing education. We are fighting and battling to have a similar pharmacy council that would stipulate systems for continuing education."* There is significant frustration with the situation, with considerable blame directed at the JPA for not taking measures to ensure its members' fitness to practice. A director working in the manufacturing industry captures this frustration: *"The JPA should have a stronger role. We have been talking about continuing education for about a million years now!"*Another MoH pharmacist voiced herdiscontent: *"This [lack of CPD] is the first big flaw! And whose responsibility is this? The JPA's!"*Pharmacists have been actively calling for the establishment of a JPA-commissioned pharmacy board or council that would address and oversee the issue. According to the JPA, systemic bureaucracyand difficulties in implementing legislative measures have been to blame for the lack of tangible progress by its existing CPD/CE Working Committee; a spokesperson explained: *"Unfortunately it's taking a lot of time because it needs... It's a law by itself so it needs legislation. That's the part we're working on; unfortunately it's going to take a long time."*Private sector employers have taken initiatives involving the creation and deployment of in-house assessment systems; a community pharmacy training manager illustrated an example: "*Our problem in the country is that we don't have any certification body to certify your license; once you're licensed, you're licensed… So you feel that there is no difference between those who had just graduated and what they're like ten years after graduation, which is a disaster. The pharmacist is not developing. So to keep up with that, we did something, an internal policy, to enforce on everyone. We haven't got a certification board or a re-licensing system so we made it part of our promotion criteria.*"

Challenge area #5: workforce planning

In light of the concurrent surge in the number of pharmacy schools and the absence of workforce planning strategies,the ensuing growth in the workforce posed another concern for some pharmacists. A pharmacist who owns an independent pharmacy said: *"Well this is what they call random planning! This is not acceptable really. At whose expense will this be? Will it be at the expense of the society? Or will it be at the expense of the pharmacy society later on? Or is it at the expense of quality the [of graduates]? What will happen when in the future the supply exceeds the demand?"*Some insist thatcontrolling student intake be considered. A senior MoH pharmacist and researcher described this:*"There are no accurate studies as to how many pharmacists Jordan needs. In the past, it used to be just the Bachelor degree and now we have the PharmD degree as well… Like I said there should be planning for the profession: a plan for how many students to teach and how many graduates we need."*According to one public pharmacy school dean, no new pharmacy schools should open;in describing this, he also highlightsan underlying issue regarding the JPA's role in influencing pharmacy higher education policy:*"It is best that we do stop [opening new schools]. From my knowledge and managerial experience, I don't think it will work without pressure from the JPA. Unfortunately, the JPA is not practicing any regulatory role on education nor does it contribute to it; it has absolutely no relationship with education."*In contrast, other participants think that focusshould be turned to actively creating cross-sector job opportunities for pharmacists rather than controlling the supply-side. This is also the JPA's view according to one spokesperson:*"I'm not saying we should cap the number of students or reduce them, I'm not with that. Let them study pharmacy if they want to but I think we need to work more on creating job opportunities for them."*Contrasting but unsubstantiated views among participants also emerged on the workforce's employment rate. On the one hand, some argued that the continued uncontrolled supply of pharmacists will exacerbate an already looming unemployment crisis. Opposing viewers deny an underlying problem in unemployment.

Challenge area #6: remuneration and wage rate

Participants report that pharmacists are routinely paid below the officially-stipulated rate by the JPA (≈$423-494 US Dollars/month for community pharmacists). A senior pharmacist in a private hospital described this: *"I mean until now, there are pharmacists who take 150JDs [≈$211] especially in rural areas. If there was a strong syndicate, it would be able to enforce its laws through the Parliament and Ministry [of Labour], and then no one would dare overstep the pharmacist… The JPA shouldn't allow transgressions on the salary issue. Pharmacists should be able to report on employers who pay less and the JPA should be ready to punish and enforce but you know how it is, it's all connections and people knowing each other."* A training manager at a community pharmacy chain also discussed the issue of underpayment: *"We hear a lot about people especially those working in the provinces whose salaries are 80, 90, or 120 JDs. So there is no good support from the JPA. I don't feel at all that there is any support… There is a conflict of interest by those in charge of the JPA. I mean if I own a drugstore or a pharmacy I will influence many things."*The participant was referring the JPA's organisational structure, in which the majority of the governing Council's seats are reserved for pharmacy and drugstore owners; participants argue that, by making up part of the Council, business owners are thus positioned to influence policies in such a way that may not represent the best interests of the employed workforce. The business department head of a drugstore explains: *"There are problems in the profession which stem from the JPA in my opinion. The profession here is politicized. I mean drugstore owners have a slice. Pharmacy owners have it too. Private pharmacies also have their own sector. So the profession starts from the top of the pyramid with those who are supposed to represent the profession and who, I believe, look out for their own personal interests - which is their main driver."*Both employees and employers have complained that the current minimum rate has been set arbitrarily and is too low in the context of rising prices and living costs. The chief executive officer of a pharmacy chain said: *"The minimum salary is generally low… this is frustrating to many extents."*

Challenge area #7: pharmacy assistants

The seventh challenge area describes the issues reported about pharmacy assistants. The first is their deregulation. Besides the Diploma, pharmacy assistants aren't required to complete any more requirements before practice, training or otherwise. Additionally, there is no registration body for pharmacy assistants and thus no practice license to be given. According to a participant from the MoH's Health Professions and Licensing Directorate, pharmacy assistants were deregulated in 2000; the participant described the negative consequences of deregulating pharmacy assistants and indicated that it was fuelled by "professional politics": *"There used to be control before, whereby you couldn't practice without approval from the Minister. Now all you need is to pass the examination. Whether you trained or not, no one can control you. The label 'pharmacy assistant' was dropped from the Public Health Act and the JPA's Drug and Pharmacy Law. This is professional politics. They felt that the pharmacy assistant is an intruder into their profession."* Indeed, many pharmacists view pharmacy assistants in a negative light and consider them "intruders" onto the pharmacy profession; one independent pharmacy owner captures this shared sentiment: *"We have a lot of intruders in the profession and these are the pharmacy assistants."* They described how professional boundaries are overstepped through the illegal dispensing of medicines by pharmacy assistants; while only registered pharmacists are allowed to dispense medicines,participants described how common it is to find pharmacy assistants not only dispensing to patients, but in some instances running pharmacies alone. An independent pharmacy owner describes this: *"Legally they [pharmacy assistants] shouldn't [dispense] but if you go around pharmacies after 5 pm, especially in the downtown, you wouldn't find pharmacists. You would find pharmacy assistants."* The MoH's licensing directorate employee raised another important notion: *"Now let's talk about who has real impact. Let's assume doctors stopped working. The whole of Jordan would stop. The same goes for nurses. But if pharmacists were to stop working? Pharmacy assistants will simply replace them."*

Challenge area #8: PharmD pharmacists

The B.Sc. and the PharmDare viewed by the participants as two entry-level degrees in a practice environment that is essentially the same for both. The unclear role of PharmD graduates within the Jordanian national health system force many to share the same jobs of those with a B.Sc. One PharmD graduate described her own situation: *"I am a PharmD graduate and there is no work in hospitals. PharmD, at the moment, is not active as a field. I don't like to work in a pharmacy; I trained there and I didn't like it. I wanted to work in a hospital but didn't find one to work in. I tried being a medical representative but I didn't like roaming around in the streets so I felt that this [regulatory affairs] is nice, but it has nothing to do with what we studied, absolutely nothing."* According to the participants, there are far less clinical and hospital positions than there are PharmD graduates. A representative of a national pharmacy student association posed the following: *"How can you, as an educational provider, start a programme when you didn't communicate with business owners to discuss job creation?"* Additionally, interprofessional tension between physicians and pharmacists continues to form a barrier for the level of integration required for proper pharmaceutical care provision. A pharmacist manager at a sales and marketing company raised this issue:"*Whoever suggested the PharmD programme… should have done full awareness campaigns to the hospitals so that each hospital knows the importance of the PharmD pharmacist and so the doctors themselves know that this is a partner: someone who will stand by your side and work with you. Until now, their view of them is quite bad.*"There are ongoing efforts by the JPA to help secure permanent positions for some Pharm. D. graduates mainly through arranging temporary hospital posts in the hope of them becoming permanent and in some cases sharing the their wages with employers; a JPA spokesperson indicated that this has had positive effects so far: "*Slowly once they [physicians] get used to them [pharmacists], they will realise that these pharmacists are good and that they help; then they won't be able to dispense them. We've seen this happening in one of the hospitals. They started with 1 [pharmacist] and now they have 10."*

Focus group findings

The eight main challenges affecting the state of the pharmacy profession in Jordan were validated with the study's participants during the focus groups. The conceptual framework was used to identify the primary sectorial disconnect that was perceived by the participants to explain each challenge. Recommendations for solutions to each challengewere also proposed. Table 2 summarizes the validated challenges, agreed outcomes of the mapping exercise and lists the participants' main recommendations for development.

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Summary of validated challenges	Framework mapping outcome	Recommendations for development
1) Graduate skills gap and unpreparedness for practice	Education-practice	➢ Education providers to review and adjust the balance between theoretical and practical aspects of the curricula they teach. ➢ Accreditors to re-evaluate current curricular standards and develop an outcome-based standards framework based on needs-based competencies.
2) Shortcomings in higher education accreditation and quality assurance	Regulation-education	➢ Accreditors to review the current admissions processes and entry requirements of the PAD and PABP. ➢ Accreditors to review the usability and flexibility of current curricular standards for the purposes of pharmacy programme development.
3) Unregulated pre-registration training and substandard licensing examination	Regulation-practice	➢ JPA to urgently establish atraining framework and introduce a structured penalties regime for noncompliant traineesand complicit pharmacists. ➢ JPA to review the standards of the current pre-registration examination.
4) Absence of workforce development and license revalidation systems	Regulation-education	➢ JPA to urgently establish a CPD standards framework ad push for the legislation of CPD requirements and, in due course, for continuing fitness to practice.
5) Deficiencies in workforce planning and intelligence	Education-practice	➢ Education providers to collaborate with all stakeholders on creating cross-sector job opportunities for pharmacists. ➢ JPA to establish workforce planning strategies and assess current and future supply and demand.
6) Low and unmet pharmacists basic salaries	Regulation-practice	➢ JPA to introduce a structured penalties regime for non-compliant employers and consider implementing whistleblowing mechanisms. ➢ JPA to review and assess the need to increase the current minimum wage rates.
7) Loss of occupational control to pharmacy assistants	Regulation-practice	➢ JPA to urgently review enforcement of dispensing, pharmacy ownership and management laws are urgently called for. ➢ JPA to consider creating clear national definitions of the roles of all pharmaceutical personnel. ➢ JPA or/and MoH to urgently consider a reregulation drive for pharmacy assistants.
8) Mismatch between job expectations and fulfilment for PharmD graduates	Education-practice	➢ Education providers tolead efforts in integrating graduates into the market and address any misapprehensions held by prospectivePharmD students over their future.

572 **Table 2Summary of the eight validated challenges, framework mapping outcomes and recommendations for development.**

Discussion

This study set out to identify and understand the current challenges facing the pharmacy profession in Jordan. The validation of thematically analysed interview data and their mappingusing conceptual framework that has been used in pharmacy[70]resulted in eight main challenges spanning education, regulation and practice. (1) The unpreparedness of graduates for practice highlights a disconnect between educational outcomes and practice needs.(2) The inconsistencies of higher education accreditation and quality assurance mechanisms point toward a gap betweeneducational regulationsand their operationalisation in the respective educational institutions.(3) The extent to which pre-registration training is unregulated and unorganized is a result of a regulation- practice gap. (4) The absence of educational workforce development systems (i.e. CE and CPD) corresponds to a lack of regulatory policies on workforce education, hence a regulation-education gap. (5) The growing supply of the workforce coupled with unclear market demand are a symptom of a general lack of engagement between the educational and practice sectors. (6) The reported occurrence of community pharmacists being paid below their nationally stipulated minimum wages is traced to the ineffective enforcement of minimum wage regulations in practice. (7) The illegal dispensing by pharmacy assistants in community is another example of a regulation- practice gap. Finally, (8) the mismatch between the intended role of PharmD graduates and actual job fulfilment highlight anotherdisconnect between the education andpracticesectors.

Most of the challenges are complex and the causal factors are multifaceted and could be traced to more than one, or all, of the three disconnections of the framework. This was illustrated by the different answers raised by the participants during the focus groups. For example, CPD/CE was also explained as a lack of workforce education in practice settings (education-practice gap), but it was eventually agreed that the absence of legal CPD/CE requirements of pharmacists merited prioritization (regulation-education gap).Collaborative efforts among the groups to simplify the explanations by reducing them to one disconnection axis per challenge were not meant to oversimplify the issues but rather facilitate prioritizing them; identifying a priority area for

development within each of the themes allowed for a more streamlined process of formulating the most relevant recommendations.One example can be found in pre-registration requirements which include both the training and the examination, but the state of the unregulated training was prioritized over the examination's standardand thus drove the mapping process and listing of the resultant recommendations.Recommendations and suggested solutions addressing – what were viewed to be secondary – sub-challenges were not excluded and are reported in the findings of this study (see Table 2 above). In the case of the pre-registration requirements challenge, participants suggested that the JPA consider reviewing the current examination's standards.The framework not only allowed us and the participants to conceptualize the challenges, but also to view them from multiple perspectives; in doing so, we were allowed to consider factors beyond those reported in the literature.

The framework also highlights the importance of multi-sector engagement and collaboration in professional arenas.According to the framework, the separations between its components allow for checks and balancesbetween any two sectors and it is important that the separations don't get too wide. The PharmD challenge in Jordan illustrates the effects of a separation that is too wide between education and practice. While it was reported that the programme's addition to pharmacy education in Jordan was intended to expand the pharmaceutical care role of pharmacists in practice[32], the practice environment – particularly in hospital settings – is not prepared for the uptake of hundreds of PharmD graduates according to the participants. A 2012 study stated that less than 5-10 institutions offered comprehensive pharmaceutical care services in Jordan.[71]This was not taken into consideration when the PharmD – a degree originally designed for the North American practice settings – was first adopted by a public school. The controversy of the PharmD in Jordan is not surprising; the establishment of thePharmD model by a number of developing countries in Asia, Africa and the Middle East is not a new trend and Anderson et al. have describedthe downfalls of adopting a program that is not aligned with the local health care systems and population needs (i.e. needs-based).[72]Similarly, the unpreparedness of graduates for practice and their skill shortages also indicate an education-practice disconnect that points towards a general lack of a unified professional vision for education driven by and for all stakeholders.

Another important aspect of the framework is its illustration of the limitations of professional self-regulation.Where dual or multiple responsibilities are held in one sector, there is not the same motivation or incentive to look for changes and improvements. Instead, there is always the potential that 'internal arguments' – for and against any development or change– will tend to perpetuate the 'status quo' instead of bringing about needed changes. This may explain the stagnation depicted in some of the challenges, especially those that fall under the responsibilities of the JPA. Participants reported that some of the challenges are not new and have remained unsolved for a long time, namely the lack of requirements forCPD/CE andthe unregulated pre-registration training. The conflict of interest inherent tothe JPA's dual role as both regulatory and professional body, presents a situation in which patient safety is undermined pharmacists' self-interests. Due to government pressure prompted by a series of national healthcare professional regulation failures, the United Kingdom's former Royal Pharmaceutical Society of Great Britain (RPSGB) was split in 2010 into a professional leadership body (RPS) and the General Pharmaceutical Council (GPhC), a separate pharmacy regulatory and registration body. Earlier in 2004, New Zealand's government legislated againsthealthcare professionals' self-regulation, driving the split of the Pharmaceutical Society of New Zealand (PSNZ). These examples, coupled with the current situation in Jordan, demonstrate that a profession may be best served by the separation of its regulatory and registration functions on the one hand, and its representative and professional leadership function on the other.Despite it being considered one of the defining 'traits' of profession, self-regulation has always been subject to criticism – raising major accountability and conflict of interest concerns.[3,73]On the other hand, it is argued that without 'competent' self-regulation, true professional dominance cannot be assured.[74]The concept of achieving competence in self-regulation is, however, questionable in health professions where patient interests are constantly positioned to be weighed against the professionals' own self-interests, and are thus bound to be sacrificed.

Self-regulation highlights not only the limitations of the trait approach, but also those of the interactionist theoristswho place the power dynamics of professionals at the heart of their theories. The conceptual framework presented in this paper views the professional arena in terms of a list of

three generic and broad sectors rather than focussing on‘interactions’, ‘functions’ or ‘definitions’. For example, the regulation component of the framework encompasses all and any parties with regulatory powers affecting the profession in question, be it self-regulatory or otherwise. This is an important aspect of the framework because it makes it complementary to the reprofessionalization paradigm. Holloway et al. point to the fact that reprofessionalization emphasizes and respects the “processual and conditional nature” of occupational control, as opposed to the unilinear approach traditional theories take in determining the once-and-for-all professional status of an occupation.[75] In turn, the structure of the framework and the dynamic relationships between its components respect and emphasize the processual nature of reprofessionalization. Another important aspect of the framework that lends it with an advantage over tradition theories of professionsis its ability to be contextualized andaccommodating of the varying characteristics of professional arenas. Any list of criteria borrowed from the trait theory for instance may not be work in more than one settings; a profession in one nation may not have a professional association, or a pre-licensing examination in the first place – in which case the trait theory will immediately disqualify it from the professionalization race. Indeed, the pharmacy community are warned from blindly relying on and supporting professional ideologies and professionalizing projects.[76] Efforts to do so may be deemed fruitless considering the lackof a universal consensus on what constitutes and defines a pharmacy profession;Traulson and Bissel instead rightly point out that pharmacy is in fact “embedded in the culture and the laws of the land where it is practiced”.[12]

The study identified a number of significant challenges that require urgent consideration by all stakeholders in Jordan, and particularly by governmental, regulatory and professional bodies.Before developing a professional vision, the need for change must be recognised and accepted[77], and the researchers hope to have succeeded in establishing a sense of urgency around the necessary changes that must be undertaken.The researchers hope that this study’s findings, and the resultant recommendations, will serve as a useful roadmap for informing and guiding current and future local professional initiatives and policymaking efforts. Further research into each of the issues identified is required to better understand and address them; local researchers and policymakers are therefore

urged to consider formulating questions from the issues presented in this study and investigating them further. The researchers also urge regional and global researchers and stakeholders – particularly in developing countries where challenge-identification may be a challenge in and by itself – to employ the methodological approach used in this study in their respective contexts. The authors believe that the stakeholder-centric approach employed in conducting the research increased the validity and reliability of its conclusions, and the involvement of key policymakers increases the potential impact and implementation of the its findings and recommendations. In addition to the methodological design lending itself as a replicable example to pharmacy practice and health policy researchers, many of the issues highlighted in this study will have international resonance,thus potentially providing insights of value to health professions worldwide.

Study limitations

The researchers note that this study has several limitations. First, participant validation was found to be a logistically challenging method; the lead researcher, LRB,could only hold the focus groups on one particular day and this may have disallowed many participants from taking part. Despite the difficulty in re-engaging the entire original sample, the researchers believe that the cooperation of any number of original respondents is valuable. Second, the authors recognise that the sample of participants does not represent the total population of the pharmacy population; additionally the non-recruitment of other stakeholder groups such as patients and other health care professionals may have affected the breadth of views presented. Therefore, caution should be used in drawing conclusions from the results of this study. The third limitation is related to data translation. Taking into account time and cost constraints, maximal measures were taken in this study to maximise the trustworthiness of the translation process, translating the source language to target language – particularly Arabic – is challenging and may have an impact on conceptual equivalence and this is an intrinsic limitation of cross-language research.[78]

Conclusion

This paper has, for the first time, provided a holistic overview of the challenges facing the pharmacy profession in Jordan. It also presented a new conceptual framework that describes the relationship between three sectors of a professional arena: education, regulation and practice. The framework was used in a participant-centric study design to aid in understanding the challenges and devising appropriate recommendations for professional development. The frameworkwas found to not only be a practical and effective interpretive and formative toolfor research purposes, but also a modern and dynamic approach thatmay potentially redefinethe way professions are viewed and guidethe inevitable reprofessionalization processes necessary to the survival of health care professionals and their roles in ever-changing healthsystems.

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881 # List of Figures

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890 # Appendix 1

Semi-structured interview guide
1. Tell me about the nature of your practice and your role.What challenges do you face in your practice setting? 2. What are your thoughts on pharmacy education in Jordan? What do you think of the quality of graduates? What skills or competencies do they lack, if any?What changes, if any, would you like to see in pharmacy education in Jordan? 3. With regards to your practice, what are your thoughts on the regulation of pharmacy? What challenges do you face? What changes would you like to see in regulation? 4. What do you think of the regulatory role of the JPA? What do you think of the JPA as a professional body? Do you perceive the JPA to be carrying its responsibilities effectively? If not, why? 5. Generally speaking, what do you think of the overall status of the profession here in Jordan? Why? 6. What challenges do you think it faces? How do they affect you in your practice? 7. How do you think those challenges should be addressed?Who should be responsible for addressing them? 8. What is the most important change that you want to see in the profession? Why?

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892 # Appendix 2

Focus group guide	
Opening question	1. I'd like to start by briefly telling you what we did with your interviews and how we used them to identify 8 challenges the research team believes to be facing the pharmacy profession in Jordan and negatively impacting on its overall advancement.
Validation phase questions	2. I want to discuss with you the validity of our findings. We've asked you to come today so you can help us. Your participation is vital to the final conclusions of the study and I would like your full input. We are especially keen on hearing any opposing views or constructive criticisms which will only help us to further refine the results and improve the study. 3. What do you think of challenge X?Do you think it's true? Does it accurately reflect the situation? 4. Do you think it *doesn't* represent the situation? How? Do you disagree with it? Why? 5. Do you perceive X as a challenge facing the pharmacy profession in Jordan? Do you think that this challenge is affecting the overall advancement of the profession? How? If this challenge is addressed, do you think the profession would be in a better state? 6. Do you think there are other major challenges that are not described by this list?
Transition question	7. Now that we've validated the challenges, I would like to tell you about a conceptual framework that we can use to help us better understand each challenge and discuss ways of addressing it.
Mapping phase questions	8. On the piece of paper with an illustration of the framework in front of you, please take as much time as you need to assign each of the 8 challenges to the axis you perceive to be the main cause of the challenge. More than one may apply, but please try to assign it to what you perceive to be the primary one. 9. Regarding challenge X, who perceived the challenge to be related to a disconnect between education-regulation?Regulation-practice? Practice-education? Why? 10. Do you all agree that challenge X is primarily related to disconnect Y? If not, why? 11. The research team initially assigned challenge X to disconnect Y-Y because they thought the reason is Z. What do you think of their interpretation? 12. How do you think challenge X can be addressed? What solutions do you perceive to be appropriate? What recommendations do you have?
Ending questions	13. We hope to publish the final results of this study. Do you think the results may have an impact on pharmacy in Jordan? Do you think you or other stakeholders would use this information? 14. Finally, is there anything else you would like to say?

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