University of Groningen

Providing color to the pharmacy technician

Koehler, Tamara

DOI:
10.33612/diss.175810910

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2021

Link to publication in University of Groningen/UMCG research database

Chapter 4

Developing a competency framework for pharmacy technicians:
Perspectives from the field

Tamara Koehler
Harold Bok
Michiel Westerman
Debbie Jaarsma

Abstract

Background: Within the last decade and given the context of ever-growing complexity in pharmaceutical care the new profession of pharmacy technician was added to the pharmacy team. Until now, pharmaceutical organizations worldwide are searching for the best way to educate and employ future pharmacy technicians.

Objective: This empirical study set out to gain insight into the knowledge, skills and attitudes required to perform as a pharmacy technician. A further aim was to develop a pharmacy technician competency framework on the basis of experiences and opinions of stakeholders from the Dutch pharmaceutical field.

Methods: A multi-method qualitative research design was used to develop a competency framework between 2014 and 2016. Data were collected using focus group interviews. Iterative thematic analysis led to an initial framework, which was refined using a modified Delphi-method. A competency domain was considered relevant if a minimum of 70% consensus was reached.

Results: Both pharmacy technicians (n = 27) and pharmacists (n = 12) participated in the focus groups. The Delphi-panel consisted of pharmacy technicians (n = 8), pharmacists (n = 12) and representatives of other stakeholders like patient organizations, health policy makers and all levels of pharmacy education (n = 14). The developed competency framework comprises 6 domains: Communication in patient care, Interdisciplinary collaboration, Pharmaceutical expertise, Organization of care practice, Collaborative leadership and Personal development. A detailed description about the practical implications of each domain was added to the framework.

Conclusion: The pharmacy technician competency framework provides a solid foundation for both pharmacy technician training and curriculum development and is based on several rounds of scientific research. The proposed competency framework may help understand the pharmacy technician role and how to best prepare for practice within pharmaceutical care.

1. Introduction

In the past decades, pharmaceutical patient care has become increasingly complex and extensive.[1] As a result, pharmacists are increasingly struggling to maintain their high quality level of patient care due to the growing number of tasks and responsibilities.[2,3] Furthermore, the pharmacy assis-

tant workforce appeared to be insufficiently trained to assist pharmacists in overcoming these challenges. In response to this worldwide challenge, the pharmacy technician profession has been established, a new role within the pharmacy support workforce.[4] The introduction of the new pharmacy technician profession was a way of preserving the safe and effective pharmaceutical patient care by relieving pharmacists of certain tasks and responsibilities while not impeding the work of pharmacy assistants.[5,6] The profession of pharmacy technicians has developed differently worldwide due to cultural or national differences, or different organization and practice of pharmaceutical patient care.[7] The roles and responsibilities of pharmacy technicians vary considerably from one pharmacy to another, from solely facilitating immunization programs, through being involved in point of care testing processes, to performing medication reconciliation during preoperative screening.[8–10] In addition to differences in job descriptions or roles within pharmacy practice, there are large disparities in how pharmacy technicians are prepared and trained for their functions.[11,12] Anecdotal evidence illustrates this variety in job descriptions and training programs. For example, the routes to getting a pharmacy technician job varies from local training programs at single hospitals in the U.S.[13] to national certification exams before being permitted to practice in Canada.[14] It could be postulated that these differences in job descriptions and training programs illustrate that many pharmaceutical organizations worldwide are searching for a way to implement the relatively new profession of pharmacy technician and, therefore, an education program that provides a broad curriculum.

Research on how pharmacy technicians are employed and the issues they face in their daily practice is pivotal to better inform the design of future pharmacy technician education.[15,16] Besides, there has been a shift towards competency-based education for pharmacists and pharmacy support workforce.[17] Therefore, the use of competency frameworks in which the required knowledge, skills and attitudes are integrated has been well established and provides guidance on how to best prepare for practice.[18–21] To the authors' best knowledge, however, a specific competency framework for pharmacy technicians is lacking in empirical research. The development of such a framework might contribute to the discourse concerning training and employment of pharmacy technicians. This article reports on the empirical development of a competency framework for pharmacy technicians within the context of Dutch pharmaceutical patient care.

2. Methods

The Ethical Review Board of the Netherlands Association for Medical Education approved the study (NVMO-ERB; dossier number 381). The study informing this article was a multi-method study, including focus group interviews and a Delphi procedure, which was conducted between November 2014 and July 2016. Focus groups were used to gather the opinions, ideas and beliefs of various groups of stakeholders in pharmaceutical practice and capture data on the required pharmacy technician competencies.[22] Qualitative analysis allowed for the generation of rich data and deepened the understanding of this relatively unexplored issue. This resulted in a preliminary pharmacy technician competency framework, which was then refined and validated using a modified Delphi procedure among pharmaceutical (education) experts.

2.1 Educational background

Before 2004, the Dutch pharmacy workforce consisted of pharmacists who were educated in 6-year university programs and pharmacy assistants who were educated in 3-year vocational programs. As of 2004, the pharmacy technician profession was added to the pharmacy workforce. To become a certified pharmacy technician, experienced pharmacy assistants would have to complete three years of additional training at the level of higher professional education, which would include theoretical courses and workplace learning. Even though no formal curriculum existed yet, the profession of pharmacy technician was established in the Netherlands to support the pharmacist, coach the team of pharmacy assistants in providing good pharmaceutical patient care and act as the liaison with all possible healthcare providers.

2.2 Focus group interviews

Participants

To represent a range of opinions from different stakeholders in the pharmaceutical domain, a nationwide purposive sample of stakeholders was selected. Participants had to be either a pharmacy technician who was graduated, or a pharmacy technician in the last year of training, or a pharmacist who was working closely with a pharmacy technician. Years of work experience was defined as 'working as a pharmacy technician' for pharmacy technicians and 'working with a pharmacy technician' for pharmacists. Separate focus groups were held with pharmacy technicians and phar-

macists in order to ensure a sense of community and enhance the sharing of opinions and experiences. Three focus groups consisted of pharmacy technicians who were working in either public or hospital or outpatient pharmaceutical practice. Two focus groups consisted of pharmacists from similar settings who had a pharmacy technician in their pharmacy team.

Procedure

All pharmacy technicians and pharmacists who agreed to participate were sent an invitation letter by mail, informing them in detail about the aim of the study and the procedures for the focus groups. All sessions averaged 90 min in length and were facilitated by a moderator, who was experienced and knowledgeable in the field of pharmaceutical practice. At the start of each session, the moderator briefly explained the focus group procedure to the participants and assured them that no possible harm cold come to them as a result of being involved in the study: participation was voluntary and anonymity and confidentiality was guaranteed. The moderator encouraged participants to share their personal insights by explaining that all opinions and experiences should be considered valid.

The focus group sessions followed a semi-structured interview guide, which was based on existing literature on the development of competency frameworks[22,23] and the expertise of the research team. The moderator posed main questions to prompt the discussion: 'What are your daily work activities as a pharmacy technician?' and 'Can you identify specific work activities that belong to the profession of pharmacy technician?' In order to deepen the discussion, the moderator posed questions like 'Which kind of knowledge, skills and attitudes are needed to perform these activities?' or 'How would you contrast the professions of pharmacy technician, pharmacy assistant and pharmacist?'.

The design of this iterative study involved ongoing data analysis in which the results of a focus group sessions informed the subsequent session, leading to minor adjustment and refinement of the data collection process. These changes did not influence the output of the focus groups but rather helped to identify potentially relevant topics and expand on this new information. It was considered that theoretical saturation had been achieved when no new information emerged from a new session. The primary researcher (TK) acted as an observer of all focus groups and did not participate in the discussions. TK took field notes and facilitated debriefing sessions with the moderator to provide feedback and identify emerging

themes. The focus groups were audio recorded and transcribed verbatim by a professional transcriber. Member checking was used as a technique for establishing the validity of the study. All participants received a summary of the discussion within two weeks after the session. All participants confirmed that the summary gave an accurate description of the session they attended.

Analysis

The main objective of the analysis was to interpret the data so as to arrive at categories and themes that could be used as building blocks for the preliminary competency framework. Each research team member (TK, MW, HB, AJ) performed an initial reading of the transcripts independently. Afterwards, notes were compared and differences were discussed until consensus was reached. The primary researcher (TK) analysed all data in an iterative process of data reduction by assigning codes using software for qualitative data analysis.[24] Based on their relationships and connections codes were categorized into themes, and by renaming and reorganizing themes the preliminary competency framework emerged. During the analysis process, these themes were reviewed, discussed and defined in various meetings with the research team until full agreement was reached on the description of the preliminary competency framework for the pharmacy technician. This initial framework, which consisted of six competency domains including a practical description, served as a starting point for a modified Delphi procedure.

2.3 Delphi procedure

Participants

A modified Delphi procedure was conducted to validate the preliminary competency framework that had emerged from the focus groups. Within a Delphi procedure, participants are considered "informed experts by reason of their day-to-day involvement" with the question at hand.[25] A total of 38 potential participants who met the inclusion criteria and had not participated in the focus groups, were approached in person by the primary researcher (TK). The Delphi panel comprised pharmacy technicians working in public, hospital and outpatient pharmacies, pharmacist working in similar settings with a pharmacy technician in their team and representatives of other stakeholders like patient organizations, insurance companies, health policy makers, the association of pharmacy professionals (KNMP)

and all levels of pharmacy education. Years of work experience was defined as 'having relevant experience in the pharmaceutical field'.

Procedure
For each Delphi round, all panel members received an invitational email consisting of a short explanation of the procedure and a web link to the survey. They were invited to judge the relevance of the competency domains of the framework on a five-point Likert scale (1 = not relevant and 5 = very relevant). The survey also allowed the participants to provide narrative feedback on the domain titles and descriptions. After analysis of the data, the panel members received written feedback comprising the relevance scores and a summary of the textual comments. They were asked to rate their agreement on the relevance of the domains again and provide general feedback. This process continued until consensus was reached.

Analysis
Definition of consensus was established before data analysis: a competency domain had to be rated as relevant (4) or very relevant (5) by at least 70%26 of the panel members in order to be included in the competency framework. After each Delphi round, the mean scores and standard deviations of the relevance scores were calculated and the narrative feedback on the domain titles and descriptions was analysed. Based on this feedback, revisions were made to the framework. The adjusted version of the competency framework formed the input for the consecutive round of the Delphi procedure.

3. Results
In total 27 pharmacy technicians and 12 pharmacists participated in the focus groups. Members of the pharmacy technician focus groups were working in public pharmacy (n = 13), hospital pharmacy (n = 7) or outpatient pharmacy (n = 7). Members of the pharmacist focus groups represented public pharmacy (n = 8), outpatient pharmacy (n = 3) and hospital pharmacy (n = 1). Out of the 38 invited members of the Delphi panel, 34 agreed to participate and actually participated in the first round. Six of them did not participate in the second round for personal reasons such as illness. Table 1 provides demographic characteristics of the participants.
The focus group study resulted in a framework of six domains and a description of each domain. In the first round of the Delphi procedure, con-

Table 1. *Characteristics of participants of the focus groups and the Delphi procedure.*

	Number (ratio male/female)	Mean age in years (range)	Work experience in years (range)
Focus group – pharmacy technicians	27 (0/27)	44 (25-59)	6 (3-11)
Focus group – Pharmacists	12 (6/6)	46 (32-66)	7 (3-11)
Delphi members	34 (10/24)	46 (30-68)	18 (2-43)

Table 2. *Delphi procedure relevance scores.*

Domain titles	Consensus on relevance (%)	
	Round 1	Round 2
Communication in patient care	100	
Interdisciplinary collaboration	100	
Pharmaceutical expertise	97.1	
Organization	85.3	
Collaborative leadership	76.5	71.4
Personal development	94.1	

sensus (a score above the cut-off point of 70%) was reached on the inclusion and titles of all six domains (see Table 2).

Based on the narrative feedback, fine-tuning revisions were made to the domain titles and descriptions of five out of six domains. The considerable amount of feedback on the sixth domain 'Collaborative leadership', however, led to major changes on this domain title and description. Subsequently, the panel members were asked to score the relevance of the inclusion of the adjusted domain again and provide written feedback on the competency framework as a whole. As a result, consensus was reached on the sixth domain and minor feedback was received on the framework as a whole. The six competency domains and their descriptions are displayed in detail in Figure 1. To ensure comprehensiveness, their descriptions are also presented in a separate manner below, illustrated with three or more representative quotes from the focus groups and the Delphi panel. It should

be considered that pharmacy technicians who provide pharmaceutical care use an array of knowledge, skills and attitudes and, consequently, utilize multiple domains in an integrated manner.

3.1 Communication in patient care

Participants mentioned communication as one of the most essential components of professional competence. The ability to communicate in an empathic and professional manner with patients, colleagues and others, which was perceived to be characterized by careful listening and comprehensive communication, was first emphasized by the focus group participants and then underlined by the Delphi panel.

"You've got to keep asking questions... This does require a certain amount of empathy with patients. You need special communication skills for this. Of course, you need to create the right atmosphere, because with a first or second dispensing, you only have a limited amount of time available to explain the medication, so to speak. You can only spend a limited time per patient, so you need to establish trust right away. I think pharmacy technicians are better able to do so because, weird as it sounds, they are more close to the patients or[...]. They communicate at the same level as patients. A lot of patients look upon GPs or pharmacists as experts you do not need to bother with silly questions." **(Pharmacist**, Group 5)

"Communication when dealing with difficult patients. The angry patients, irritated patients who [...]. We have implemented something like a 5-min rule in our pharmacy, so if a pharmacy technician or a pharmacist notices that a conversation [between a patient and an assistant] lasts a long time, they should ask themselves: 'Is this a conversation of approximately five minutes, or is it better to take over?' It partly involves difficult patients or difficult questions or [...] and a pharmacy technician is perfectly able to triage these conversations instead of a pharmacist." **(Pharmacist**, Group 3)

"Pharmaceutical patient care mainly concerns the patient's needs, worries, expectations and beliefs. You have to adapt your communication to suit individual patient's needs and level of understanding." **(Delphi panel member)**

3.2 Interdisciplinary collaboration

Collaboration with colleagues and other healthcare professionals, either

The pharmacy technician

Communication in patient care

Interdisciplinary collaboration

Personal development

Collaborative leadership

Pharmaceutical expertise

Organisation of care practice

Figure 1. The competency framework of the pharmacy technician.

Personal development

* Assures the continuous updating and improvement of (one's own) pharmaceutical knowledge and skills.
* Ensures continuous maintenance and updating of pharmaceutical knowledge and skills.Possesses an exploratory and reflective attitude towards improvement of (one's own) actions.
* Has an inquisitive/inquiring, reflective attitude towards self-improvement. improving one's own conduct.

Communication in patient care

* Communicates with patients about their (complex) care demands in an empathic and understandable way.
* Actively provides clarification on pharmacy policy, care agreements and individual patient care to the pharmacy team.
* Proactively and adequately discusses individual patient cases, care projects, functioning of the pharmacy team and pharmacy policy with the pharmacist.
* Provides clear and comprehen-
sive reports to first and
second-line health care provid
ers, both in writing and orally.

Collaborative leadership

* Effectively gains insight into the opinions and concerns of the pharmacy team.
* Provides clear guidance to the pharmacy team with respect to daily business.
Keeps formal and/or informal records of the functioning of the pharmacy team.
* Manages societal and (pharmaceutical) organizational change by coaching the pharmacy team in an integral
and inspiring manner.
* Is responsible for several care projects and possesses the management skills required to lead effective teams and projects.

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Pharmaceutical expertise

* Acts in a competent and solution-oriented manner when interacting with patients (on the phone, at the bedside, at the front desk, in the consultation room, et cetera).
* Supports the pharmacist in preparing and performing medication verification and medication review.
* Acts as a role model and an approachable point of contact for the pharmacy team concerning pharmaceutical care, and actively provides pharmaceutical knowledge to their team members when noticing a gap/shortage of knowledge.
* Develops and provides education for the pharmacy team and other health care professionals.
Has ample pharmaceutical knowledge to perform (predefined) medication checks according to a fixed protocol under supervision of the pharmacist.

Interdisciplinary collaboration

* Collaborates effectively with a large variety of first and second-line health care professionals for the benefit of the individual patient or relevant patient groups.
* Is familiar with relevant guidelines and developments in health care delivery and acts as point of contact for enquiries about pharmaceutical care from inside or outside the organization.
* Establishes and maintains good pharmaceutical care by convincingly guiding and/or instructing health care providers.
* Identifies, implements and completes a range of health care projects by working in close collaboration with other health care providers.
* Clarifies the role of pharmacy in public health and represents the profession when engaging with other health care providers.

within or outside one's professional work environment, was considered important for ensuing adequate patient care.

> *"You also must be able to speak the language of the nurse and the doctor. [...] What words to use? Yes. (Pause.) Yes, what can be more suitable to convey my message? Yes, how am I going to get the answer I need?"* **(pharmacy technician,** *Group 2)*

> *"It's not just a matter of clarifying the position of the pharmacy, but also of getting an idea of the wishes and needs of other care providers in order to reach agreement on the care process."* **(Delphi panel member)**

> *"I feel emphasis should be placed on working in multidisciplinary teams with the aim of providing more effective and efficient individual patient care. All of which is based on that particular patient's needs."* **(Delphi panel member)**

Insight in the different roles of other health care professionals was also considered important for this domain:

> *"But also empathy, just being able to see why the other person reacts the way he or she does. We experience this a lot with nurses. They can sometimes be a bit blunt, but then I say to the pharmacy assistants: 'You know, maybe they had just been standing right next to a person who died.' Under such circumstances, you will not be able to instantly react in a normal way, so try to achieve mutual understanding."* **(pharmacy technician,** *Group 4)*

3.3 Pharmaceutical expertise

The participants emphasized the importance of pharmaceutical expertise to ensure adequate performance of professional tasks. The higher level of pharmaceutical expertise that a pharmacy technician had to achieve, as compared to the level of pharmacy assistants, was seen as a fundamental prerequisite for having a well-informed dialogue with a patient (group), being able to support the performance of the pharmacist and boosting the education of the pharmacy team and other health care providers.

> *"[Our] higher level of team performance is achieved because I constantly try to explain the management of drug interactions and contra-indications at the knowledge level of pharmacy assistants, and [...] as a result the team mem-*

bers gain that knowledge and experience to do it by themselves." **(pharmacy technician**, *Group 4)*

"Our pharmacy technician has to deal with medication reviews on a daily basis. She [the pharmacy technician in this team] assists the pharmacist in preparing medication reviews. She screens the medication list in each patient's chart. Makes her own inventory of possible problems and then presents it to us." **(Pharmacist**, *Group 5)*

"I expect a pharmacy technician to have far more expertise and specialist knowledge and understanding of high risk drugs than a pharmacy assistant." **(Delphi panel member)**

3.4 Organization of care practice

The participants emphasized the importance of pharmacy technicians for the organization of daily practice of a pharmacy:

"We've got the pharmacy technician & pharmacist meetings. Every first Monday of the month we, one pharmacy technician and two pharmacists get together and discuss business. Upcoming projects to be implemented, but also monitoring and evaluation of current projects and holiday schedules, that too." **(Pharmacist**, *group 5)*

"We just recently started with the discharge medication project. At the moment, we only work with pharmacy technicians [and not with pharmacy assistants], because we're in the starting phase. So, we'll keep track of issues we run into and then we'll add these procedures to the working protocol." **(pharmacy technician**, *group 2)*

"Being aware of developments in the world" **(Delphi panel member)** *was also mentioned explicitly.*

"And from a societal perspective, I think it's also important for pharmacy technicians to play a signalling role. To have a feeling for societal change that affects pharmacy practice. And what works well for me is that I can really discuss these changes with her [the pharmacy technician in this team]." **(Pharmacist**, *group 2)*

3.5 Collaborative leadership

Collaborative leadership was identified in the focus groups as a competency domain that represents the ability of the pharmacy technician to act as a liaison between the pharmacist and the pharmacy team. While being part of the team, a pharmacy technician establishes commitment from team members through good relationships, models the kind of behavior expected to benefit good pharmaceutical patient care, and is able to convey a sense of direction to the team.

*"If you run a project and you are project leader, then you must be able to lead the team which you are working with, because you have to make sure that your project runs smoothly and that finally results are achieved. So, then you have to lead − otherwise nothing will happen." (**pharmacy technician**, group 2)*

*"I am the first point of contact in the workplace anyway, so the team members first consult me, before contacting the pharmacist, unless I say to them: 'Let's go ask the pharmacists...' You could say this once again shows the bridging role I've got between assistants and pharmacists. They first contact me and, if necessary, we ask the pharmacist for help." (**pharmacy technician**, group 1)*

*"I, for one, think it's very important for a pharmacy technician to actively participate in the team of pharmacy assistants too [...]. To, let's say, to monitor the use of the protocols we agreed upon. So she [the pharmacy technician in this team] is working four days a week, but on two of her working days she is not on the schedule and spends her time working on projects. On the remaining two days, she participates in the pharmacy team as usual. Also, to act as a point of contact for the team, if someone gets stuck [with a prescription] and needs a helping hand, but also to observe: 'Gosh, we have agreed to use certain protocols, but how do these protocols work in practice?'" (**Pharmacist**, group 3)*

"On leading the team? I have a nice example [...]. We have a considerable workload and also quite some work-related stress. A few years ago, I just took initiative and formed working groups to discuss this and to see... What can we do about it? Now he [the pharmacist] just loved it! So, we started to map our stress factors and it all resulted in job descriptions. [...] Those descriptions had to be communicated [with the team] of course. But, my pharmacist finds that very difficult to handle. Sure, he wants to better staff our stations and reduce

*the patient waiting time, but like I said [...]. He finds it difficult to discuss stuff with the team. So, he uses me for this, to address the team, to present this topic to the team. [...] So, I take the heat, because it has to work. It is such an improvement for us when all employees know what to do and where their responsibilities lie!" (**pharmacy technician**, group 5)*

The Delphi panel members also put emphasis on the bridge role of a pharmacy technician in strengthening the relation between a pharmacist and the pharmacy team. One member reported:

*"The pharmacy technician should be looked upon as a central figure. Therefore, it is important for a pharmacy technician to have a clear understanding of what is happening in the team of assistants, but also of what the pharmacist tries to accomplish... And what is happening in the field of pharmacy... And in the world... A pharmacy technician can use this helicopter view to anticipate on new developments, inform the pharmacist and discuss important topics with the pharmacy assistants." (**Delphi panel member**)*

3.6 Personal development

Personal development as a competency domain was characterized as the ability to reflect on and improve one's own knowledge and skills.

*"Seeks feedback on own behavior and performance and provides others with feedback." (**Delphi panel member**)*

*"Needs to keep reflecting on one's own performance, remains an active part of the team [of pharmacy assistants], and continues to perform assistant tasks." (**Delphi panel member**)*

While discussing this domain, focus group participants also emphasized the importance of and need for continuing pharmacy education for pharmacy technicians, tailored to the needs of society and the profession of pharmacy.

"I find it useful to refresh my memory on certain topics, but actually we have a lack of access [to continuing education]. We talked about it before: Why aren't there any advanced courses [for pharmacy technicians]? There are rumors

going around that there will be post-graduate courses, which is something
we really need. Sure, you could do additional training or a refresher course for
pharmacists, but that's aiming a bit too high sometimes. So, you kind of fall
in-between. Or we could discuss the profession together [with other pharmacy
technicians] … a kind of intervision [group] perhaps." **(pharmacy technician,**
group 5)

Figure 1 illustrates the pharmacy technician competency framework that
emerged from this qualitative study, comprising six domains that are con-
sidered equally important and essential for being able to function properly
as a pharmacy technician. Since the domains were described separately
in the text, it needs to be emphasized that pharmacy technicians utilize
multiple domains in an integrated manner. For example, pharmaceutical
knowledge is an essential part of a clear and emphatic conversation with
a patient, but so are the skills to navigate the interdisciplinary world of
healthcare, in which that same patient is situated.

4.Discussion

This study sought to build and validate a theoretical framework for the
profession of pharmacy technician to inform policy, practice and the design
of pharmacy technician education. The proposed pharmacy technician
framework consists of six competency domains: Communication in patient
care, Interdisciplinary collaboration, pharmaceutical expertise, organiza-
tion of care practice, collaborative leadership, and personal development.
All domains are considered equally important; all competencies add to good
pharmaceutical patientcare.

Within pharmaceutical literature, little to none empirical research on
competency frameworks for pharmacy technicians exists. Frameworks for
pharmacist are more common, and mainly based on research in the local
setting or derived from the CanMeds, a framework used in medical educa-
tion. However, the need for a competency framework that clarifies the need
for a pharmacy technicians scope of practice is clearly voiced.[27] This study
adds to that conversation presenting an empirically researched competency
framework for pharmacy technicians.

An important finding that clearly surfaced in the domain of collaborative
leadership was that there were differences in opinion of what constitutes
leadership. Even though this domain scored above the cut-off point of 70%
and earned its place in the framework, the scores were decidedly lower

than the scores for the other five domains. Additionally, a lively discussion on 'leadership' emerged from the written feedback on the domains. This discussion could be a sign that there was ambiguity about the meaning of hierarchy and leadership in pharmacy practice.[28] The domain of collaborative leadership was not only considered to benefit the pharmacy technician profession, but also as an innovative element of the framework. This assertion was made on the basis of the richness of the discussions in the focus groups on this topic and the elaborate conversation that went on between the members of the Delphi panel in an attempt to pinpoint the definition of leadership. The integration of the domain in the framework also aligns with the recent inclusion of leadership as one of the core physician skill domains in CanMEDS 2015.[29,30]

The multi-method design, which was based on proven methods of qualitative educational research,[31,32] is a strength of this study and supports the validity and reliability of the framework. Another strength of the study design is the inclusion of representative samples of pharmacy technicians and pharmacists originating from public, hospital or outpatient pharmacies in both the focus groups and the Delphi panel.

The findings of this study may serve as a first step in getting a clearer picture of the newly developed pharmacy technician profession. A competency framework based on perspectives from the field could provide an excellent foundation for entry-to-practice training of pharmacy technicians and support professional career development.[27] Once competency based education has been implemented in formal pharmacy technician education and lifelong learning programs, it would be worthwhile to assess the feasibility of the framework in the daily practice of educating pharmacy technicians. It is good to keep in mind the challenges that come along with the implementation of competency-based education, since literature has documented the existence of barriers. The need to establish meaningful and measurable descriptions of performance levels tailored to the needs of individual patients and society, and difficulties in determining how to assess competence in pharmacy technician education and across the continuum of training and practice, are just two of the most significant obstacles.[33,34]

4.1 Study limitations

An unfortunate and unanticipated limitation of this study could be the observed reluctance of pharmacy assistants to participate in this study, which may have been caused by assistants' unawareness of the pharmacy

technician role. In our opinion, this extra emphasises the need to clarify this role. Another limitation may be that professionals from other health care domains were not included in this study, which may have affected the breadth of the information.

5. Conclusion

This study set out to develop a research-based competency framework that reflects and contributes to the discourse on how to best prepare pharmacy technicians for practice. The findings of this study support the idea that the pharmacy technician is an evolving profession that is still being shaped. The proposed competency framework may help understand the pharmacy technician role and serve as a basis to inform the debate on pharmacy policy, pharmacy technician education and employment.

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