



Implementing the pharmacy technician role in existing pharmacy settings: Stakeholders views of barriers and facilitators

Tamara Koehler^{a,*}, Floor Velthuis^b, Esther Helmich^c, Michiel Westerman^d, Debbie Jaarsma^{b,e}

^a Division Pharmacoepidemiology & Clinical Pharmacology Utrecht Institute for Pharmaceutical Sciences (UIPS), Department of Pharmaceutical Sciences, Faculty of Science, Utrecht University, the Netherlands

^b Center for Education Development and Research in Health Professions, University of Groningen and University Medical Center Groningen, Groningen, the Netherlands

^c Amsta Healthcare Organization, Amsterdam, the Netherlands

^d Department of Nephrology, Franciscus Gasthuis & Vlietland Ziekenhuis, Rotterdam, the Netherlands

^e Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands

ABSTRACT

Background: The field of pharmacy will benefit from pharmacy technicians, a higher educated mid-level support workforce. They support pharmacists in providing pharmaceutical patient care through delegated roles and responsibilities. Empirical research on pharmacy technicians within pharmacy practice community and hospital pharmacy practices tends to focus on the practical outcomes of this workforce addition. It mostly addresses the ‘WHAT’ of service delivered by pharmacy technicians. Literature on the ‘HOW’ of their role development in practice is scarce. Furthermore, it seems difficult for most pharmacy technicians to effectively fulfil this professional role.

Objective: This qualitative study explored factors influencing role development of pharmacy technicians in community and hospital pharmacies.

Methods: On site, individual and small-group interviews were conducted with pharmacy technicians (n = 10), and two colleagues: pharmacists (n = 7) and pharmacy assistants (n = 6). Interviews were based on a semi-structured interview guide. Participants were asked to describe specific incidents and organisational, relational and pharmaceutical care perspectives, illustrative of the process of developing and implementing the pharmacy technician role. Template analysis was used to develop a list of codes representing themes identified in the data.

Results: Five interrelated themes influenced development and implementation of the pharmacy technician role. Two of them were at a more contextual level: (a) experiencing a lack of vision on added value of the new role within the field of pharmacy and (b) learning climate. The other three were related to personal interactions between staff members: (c) role expectations and organisational fit, (d) personal traits of pharmacy technicians and (e) support of pharmacy technicians through task delegation and role enhancement.

Conclusions: The data showed that development and implementation of pharmacy technician roles is a complicated process. A detailed plan for addressing and remediating the five identified themes is important to promote role development of pharmacy technicians.

1. Introduction

In recent decades, there has been considerable change in pharmacy practice. Due to the increase in chronic conditions and lifestyle related illnesses,¹ both community and hospital pharmacists are taking on extended roles in patient-centred care.² This need for a larger role for pharmacists in providing preventive and chronic care led to a repositioning of the role from delivering drugs to delivering care.³ Consequently, *community pharmacists* are currently expected to provide advanced clinical services, such as performing medication reviews, providing disease management consultations,⁴ ensuring accuracy and completeness of patients’ health records and running medication optimization and therapy monitoring programs.^{5,6} Furthermore, *hospital*

pharmacists are routinely required to provide more and more clinical services, including prescribing, performing medication reviews, ensuring safe and cost-effective use of medicines on the wards, as well as to be an indispensable member of the hospital healthcare team.^{6,7}

Despite the growing demand on advanced patient care services, willingness and opportunities to deliver and integrate those services in existing practices seems problematic.^{5,8} Known barriers to this integration are invalid payment structures, lack of support and recognition from other healthcare providers and, last but not least, insufficient time to perform these extended roles.⁴

To overcome the latter barrier, the relatively new profession of pharmacy technician has been integrated into the pharmacy workforce.^{5,9–11} Pharmacy technicians are higher education-trained staff

* Corresponding author.

E-mail address: t.c.koehler@uu.nl (T. Koehler).

<https://doi.org/10.1016/j.sapharm.2022.04.005>

Received 22 April 2022; Received in revised form 27 April 2022; Accepted 27 April 2022

Available online 3 May 2022

1551-7411/© 2022 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

members, who assist pharmacists in providing advanced patient care and clinical services by taking on delegated roles and responsibilities. With this new way of practicing pharmaceutical care, pharmacists will be able to expand their activities, which also implies that they need to refocus priorities and delegate certain tasks to the pharmacy technician (s).^{5,7,12,13}

Empirical research on the roles of pharmacy technicians within community and hospital pharmacy practices tends to focus on the practical outcomes of this task delegation. It mostly addresses the ‘WHAT’ of the service delivered by the pharmacy technician and primarily shows the content and functionalities of the profession (e.g. amounts of time freed for the pharmacist, improved reporting of medication errors, or improved medication reconciliation^{1,13–15}). It seems to depict the pharmacy technician’s role as an instrument to enact change in pharmaceutical care.¹⁶

On the contrary, literature on the ‘HOW’ of the role development of the pharmacy technician in practice is scarce. Only recently it has begun to appear and this literature paints a different picture. Recent studies on context and personal interactions influencing the implementation and subsequent development of this new role showed unrealized potential of the new profession and linked negative personal and social experiences.^{17–19} Both pharmacy technicians and pharmacists expressed feelings of frustration, caused by a discrepancy between their envisioned, idealised role of pharmacy technicians and their real, lived experiences in pharmacy practice.^{17–19} To illustrate, pharmacy technicians felt that their role was not well defined, acknowledged and/or understood, either by their pharmacist or in their healthcare centre.^{18,20} Pharmacists expressed their unfamiliarity with the new profession, resulting in not knowing how to make the necessary workflow adaptations with regard to roles and responsibilities.¹⁸ From an interpersonal point of view, the newly emerging role sometimes introduced uncertainty into the traditional hierarchy of the team.¹⁸

To summarize, the literature shows positive outcomes once the new role of pharmacy technician has been developed and fully integrated into pharmacy practice, however, this integration process and role development may be hampered. The discrepancy in findings between the ‘what’ and ‘how’ of implementing a pharmacy technician role shows the necessity to address barriers preventing effective implementation and focus on getting pharmacy technicians in place to take over tasks and responsibilities from the pharmacist. Failure to do so may lead to delays, incomplete change implementations and, more importantly, suboptimal role development for an entire group of new healthcare professionals and inadequate practice. To advance pharmacy practice, provide pharmacists with tools to effectively manage change and promote role development of pharmacy technicians, it is of great importance to understand factors that influence the development and implementation process of this new role.

To add more knowledge to this research gap, the researchers conducted a qualitative study to explore factors influencing the role development of pharmacy technicians in community and hospital pharmacies.

2. Methods

This qualitative study has been designed and reported in accordance with the Standards for Reporting Qualitative Research (SRQR) guidelines.²¹ The underlying assumption in this study is that multiple realities exist and that they are socially constructed, which is in line with a constructivist research paradigm.²²

2.1. Researchers and reflectivity

The multidisciplinary research team has backgrounds and experiences in various fields, which enhanced reflexivity throughout the whole research process, comprehensive examination, triangulation and understanding of the data.

The primary author TK is experienced and knowledgeable in the field of pharmaceutical practice and education. FV is a social psychologist who explored the complexities of enacting change in undergraduate health professions curricula. EH is an elderly care physician with extensive experience in medical education research and qualitative methods. MW is working as an internist and is an experienced qualitative researcher. Finally, DJ is a professor in health professions education and experienced in qualitative research.

2.2. Context

In 2004, the new role of pharmacy technician was added to the Dutch pharmacy workforce 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”.²³ Before this transformation of the pharmaceutical workforce, pharmacy teams consisted of pharmacists and pharmacy assistants, educated in 6-year university programs and 3-year vocational programs at intermediate level, respectively. To become a pharmacy technician, pharmacy assistants need to complete a 3-year part-time higher education program (university of applied sciences), with a strong foundation in experiential learning. After graduation, it is most common for pharmacy technicians to continue working at the pharmacy where they worked as an assistant. (see Fig. 1).

2.3. Design

Qualitative approaches are useful when exploring complex phenomena, and the focus of the reach lies on events, outcomes of those events and taking into account the perspectives of those involved.^{24,25} Accordingly, interviews were used to capture the experiences and stories of the participants.²⁶ Individual and small-group interviews (n = 20) were conducted by the primary author (TK) with pharmacy technicians, pharmacists and pharmacy assistants. All interviews were audio recorded and transcribed verbatim. Template analysis, a form of thematic analysis,²⁷ was applied to analyze the data.

2.4. Participants

The pharmacy technicians were partly sampled from the network of the primary author and partly recruited through snowball sampling. Pharmacy technicians were required to have a minimum of one year work experience in the work setting in which the interview took place. The possible work settings were community, outpatient and hospital pharmacies. Lastly, the pharmacy technicians were asked by the primary author (TK) if it would be possible to each invite two close colleagues, a pharmacist and a pharmacy assistant, to also participate in this study. Extending the interviews to these colleagues was performed to grasp the full story of the implementation process of the new role in that specific setting.

Twelve pharmacy technicians were approached to participate, of which ten met the above inclusion criteria and agreed to be interviewed. They were employed in community, outpatient or hospital pharmacies

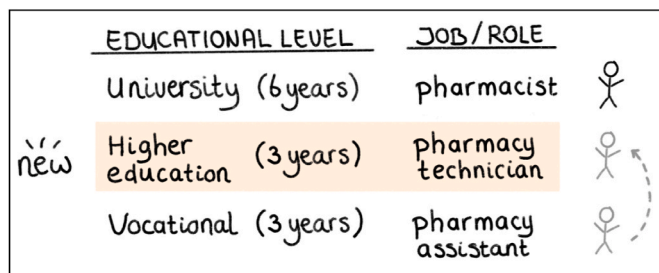


Fig. 1. Educational levels.

settings (n = 7). In two pharmacies, multiple pharmacy technicians were employed. At these pharmacies, on-site group interviews were held to increase opportunities for dialogue and the sharing of ideas and experiences: one with two pharmacy technicians (outpatient pharmacy) and one with three pharmacy technicians (hospital pharmacy).

2.5. Data collection

The interviews were conducted between October and November 2019 by the first author (TK). They were held on-site and had a duration of approximately 1 h. The interviews were based on a semi-structured interview guide. In consultation with the research team, TK developed the interview guide on the basis of literature on role development for nurse practitioners,^{28–31} anecdotal evidence from a previous study²³ and her work experience with the educational program for pharmacy technicians. Subsequently, TK conducted a pilot interview with one of the faculty members at the educational program for pharmacy technicians. Information and feedback from the pilot interview was used to further develop and refine the interview guide.

All interviews began with an orienting question: ‘Can you provide a definition of a pharmacy technician?’. Next, participants were invited to reflect on the question ‘Does the actual situation in this particular practice match that definition?’. They were also asked to describe specific incidents illustrating the process of embedding this new role in their own pharmacy. The interviewer used additional open-ended questions to elicit details about stories, reflections and personal opinions from the participants and explore organisational, relational and pharmaceutical care perspectives. The interviews ended by asking the participants to elaborate on other relevant topics related to their experiences they deemed important, but had not been addressed so far. All interviews were audio recorded and transcribed verbatim. TK anonymized the transcripts and then shared the anonymized dataset with the other members of the research team.

2.6. Data analysis

To manage and analyze the data Atlas.ti was used.³² A template analysis, a form of thematic analysis, was conducted.^{27,33} In this method, a preliminary coding template is developed on the basis of themes and topics derived from a subset of the data, preexisting knowledge of the research team members and literature. This template is then applied to all transcripts and codes and themes are modified, refined and reapplied in an iterative process of adjustment. The final template includes all relevant information to answer the research question. The advantage of this approach is the flexibility of the coding structure, which allows extensive development of themes and in-depth exploration of the richest parts of the data.^{27,33}

In line with Kiger and Varpio, the team members first familiarized themselves with the data by reading and rereading the transcripts from three different interview settings, noting ideas and preliminary themes, and discussing them with the entire team. Then TK analysed six interviews from two settings, identified preliminary codes and developed the initial template. This preliminary template was discussed within the team. Subsequently, TK coded more interviews and identified patterns and themes within and across interviews, which further informed the development of the coding template. Throughout the coding process, the data and template were frequently reviewed and discussed by the entire research team and all discrepancies in coding were resolved through consensus. After the analysis of two thirds of the interviews, FV and DJ analysed three transcripts of two different interview settings, searching for additional relevant codes or themes to answer the research question. In a subsequent team meeting, their suggestions and possible modifications were discussed, potential themes were reviewed and the template was altered when necessary. Then TK analysed the remaining interviews, making slight changes to the template. On the basis of frequent team discussions, all themes were organised and reorganised

until consensus was reached on their definitions and names.³³

2.7. Ethical consideration

In this study, the standards of the Declaration of Helsinki were maintained. According to Dutch law, this research was not subject to the Medical Research Involving Human Subjects Act (WMO) and was exempt from further review. All pharmacy technicians, pharmacy assistants and pharmacists who agreed to participate, received an invitation letter by mail informing them about the aim and set up of the study and ethical considerations. All interviewees gave written informed consent in response to this invitational letter, which stated that participation was voluntary, and anonymity and confidentiality were guaranteed.

3. Results

In total, ten pharmacy technicians were interviewed, seven pharmacists and six pharmacy assistants, leading to a total number of twenty-three participants. (See Table 1 for further demographics).

The participants’ experiences with the integration and development of the pharmacy technician role were rich and diverse in nature. Five themes were observed by the authors that were interrelated. Two were at a more contextual level within the pharmacy: (a) experiencing a lack of vision on the added value of the new role within the field of pharmacy, and (b) learning climate. The other three were related to personal interactions between pharmacists, pharmacy technicians and pharmacy assistants: (c) role expectations and organisational fit, (d) personal traits of pharmacy technicians, and (e) support to pharmacy technicians through task delegation and role enhancement.

3.1. Experiencing a lack of vision on the added value of the new role within the field of pharmacy

The first contextual theme affecting the introduction of the pharmacy technician role pertained to a lack of vision on the added value of this role in the field of pharmacy. ‘The pharmacy technician seems to be the solution, but to what problem?’ was a general sentiment among interviewees. They experienced a certain ambiguity surrounding the role of pharmacy technician. The lack of vision was also apparent in the finding that many of the participants experienced little or no recognition or support on the role from the professional association of pharmacists (KNMP). Ambiguous role expectations are present, leading to an unclear scope of practice for pharmacy technicians. As a pharmacist described:

“Pharmacy technicians have no formal roles and responsibilities, no core duties that are the same in all settings. [...] Some [pharmacists] see the pharmacy technician as a kind of chief pharmacy assistant or as a replacement for a second pharmacist. However, a specific place [role within the pharmacy team], they don’t have that.” (Pharmacist P5)

Among other things, the general feeling of unfamiliarity with the profession created discouragement among the pharmacy technicians. For example, one pharmacy technician explained that she had refrained from applying for a job in a different pharmacy after graduation. The only thing that held her back was that she did not know what would be expected of her, in her role as pharmacy technician, in another pharmacy setting.

3.2. Learning climate

In addition to a lack of vision on the added value of the new role, the second contextual theme that was identified was the prevailing learning climate, which could either positively or negatively influence pharmacy technicians’ role development. According to some of the pharmacists, pharmacies must establish a supportive learning and working climate that fosters individual and team learning and development, and offer

Table 1
Demographics participants.

	pharmacy technician		pharmacist		pharmacy assistant	
	n = 10		n = 7		n = 6	
	average	(range)	average	(range)	average	(range)
age (years)	46,6	(30–57)	52,3	(39–66)	38,8	(27–58)
work experience (years)	5,0	(1–11)	24,9	(13–40)	18,8	(1,5–40)
working with pharmacy technician (years)			6,1	(1–11)	3,8	(1,5–10,5)
fte	0,7	(0,11–1)				

opportunities for growth. As one of the pharmacists illustrated:

“It’s good for everyone, also within the pharmaceutical field, to always keep people who can take the lead, [the ones] who initiate things, who lead the way [to change]. You have to recognize these people [the innovators] in your organization, and then give them the right tools and let them learn. Because, if you educate people and give them the role to implement what they have learnt, yeah, ...then you will all move forward together.” (Pharmacist_P2)

An important subtheme of this contextual theme was time, ample time for learning. Pharmacy technicians emphasized the importance of having sufficient dedicated time to learn and develop themselves and their role, protected learning time to work on educational assignments at the workplace during pharmacy technician training. Providing earmarked time for pharmacy technicians to engage in learning activities was perceived to facilitate the introduction of the new role. Furthermore, pharmacy technicians felt that adequate feedback from the pharmacist on how to handle new responsibilities after graduation could facilitate implementation of their new role. Pharmacists described how they would keep their eyes open for interesting and challenging projects for the pharmacy technician to participate in and provide them with opportunities to further develop their role and professional skills.

In stark contrast, some pharmacy technicians and pharmacy assistants described their setting as a work environment where meaningful continuous professional education seemed not to be a priority (e.g. participation in three e-courses a year was considered sufficient). As a pharmacy assistant explained:

“This [a maximum number of three e-courses a year] does not provoke an attitude beyond ‘I just try and get the job done today’.” (Pharmacy assistant_P1)

In these settings, pharmacy technicians admitted – somewhat reluctantly – that starting and completing the pharmacy technician course was driven by their own personal motives. As one participant clarified:

“[I just wanted] to add something new to my life. [...] I just thought, you know, I’ll graduate and see where that’ll take me from there.” (Pharmacy technician_P1)

Next to the two contextual themes affecting the introduction of the pharmacy technician role, three themes that find their origin in personal interactions between pharmacists, pharmacy technicians and pharmacy assistants also were of influence: role expectations and organisational fit, personal traits of pharmacy technicians and support.

3.3. Role expectations and organisational fit

The findings in this theme represented the correspondence between the managing pharmacist’s ideas and opinions about current and future patient-centred clinical services, including the presence and qualifications of a pharmacy technician. When the managing pharmacists did not have clear ideas on future practice, or when their ideas were subject to frequent change or primarily based on short-term thinking, the construction and introduction of the new role often occurred spontaneously and ad hoc. As discussed by one pharmacist:

“Whether I have fixed idea of what a ... ? [pharmacy technician does?] No, no, I don’t have that. No, it’s not like I have a comprehensive plan or so, no.”

Interviewer: “So how has the new profession [role] been developed in your pharmacy and how does it evolve?” “Well, there are just things that ... matters that ... present themselves. What are we going to do next? And then we consider how it can be realized. And often, if it’s about pharmaceutical content, then, then I pair up with [the pharmacy technician] and then we start working together.” (Pharmacist_P6).

Even organisations with a clear view of current and future pharmacy care activities sometimes had not taken the next step of creating a distinct position and role for the pharmacy technician. Some pharmacists decided to not create and implement this mid-level role, because they wanted to rule out and avoid any

“squabbles within the team”. (Pharmacist_P1)

One of the pharmacists mentioned her

“fear of upsetting the rest of the team by favouring the pharmacy technician with specific tasks”. (Pharmacist_P4)

Furthermore, one of the pharmacy technicians described the negative experiences her pharmacists had with a previous promotion of one of the pharmacy assistants. She described this as an explanation for the lack of her role development opportunities.

“Probably the pharmacists thought: never ever again!” (Pharmacy technician_P1)

3.4. Personal traits of pharmacy technicians

This theme represents pharmacy technicians’ personal traits that may affect the introduction of their new roles. Participants described some personal traits that facilitated the introduction and embedding of the role: being socially skilled (e.g. keeping connection with the team of pharmacy assistants and maintaining and extending a network of healthcare providers), daring to speak up and advocate for oneself, having patience and most importantly perseverance. This is illustrated by a quote from a pharmacy technician demonstrating a meta-level awareness of what was required of her and how to adjust the work-flow and redistribute tasks to further optimize her role:

“It’s easy for me to say: I have the diploma, so treat me like a pharmacy technician! But what does that entail and what exactly are you capable of doing [as a pharmacy technician]? You still need to prove that and so I show that I’m eager to learn, that I really keep my promises and that I work hard for it. For example, I would really like to be more involved in medication reviews because I think that I’m well trained to do that [perform this task] with lots of communication training and role play. However, this idea needs to evolve a little more ... but I’ll succeed. I’ll slowly take it over, little by little. If we start working on those medication reviews again, I’ll say: ‘Okay, I’ll make a selection, I’ll work everything out, and those kinds of things’. And then the pharmacists will say: ‘Yes, okay. If you can do the questionnaire in advance, that would be great.’ That’s how it goes [...].” (Pharmacy technician_P5)

3.5. Support of pharmacy technicians through task delegation and role enhancement

The fifth and final theme affecting the introduction of the pharmacy technician role in existing practice, concerns directing pharmacists' support to pharmacy technicians through task delegation and role enhancement. Task delegation refers to the willingness to transfer tasks and responsibilities from a pharmacist to a pharmacy technician. Role enhancement refers to supporting the advancement of the profession or role of the pharmacy technician. Pharmacists' willingness to transfer tasks tended to be negatively influenced when the tasks at hand were considered 'fun', seen as an essential component of their identity, or legally assigned to them. However, pharmacists were inclined to delegate tasks when they wanted to free up time for other priorities or interests, or when it benefitted the organisational image.

"I would really like it if someone would take the workload off me, particularly in regard to medication reviews. A pharmacy technician would be tremendously good at it. Then it would be more structured and well-prepared. [...] And yet, I also think ... yeah ... It would be nice and easy but ... I also get a lot of energy from conversations with patients. [...] So yeah, it would be nice if the pharmacy technician could do it, but I also like to have the full picture. Then your work is more people oriented, instead of, yeah, production [task] oriented, so to speak." (Pharmacist_P1)

Participants mentioned that, in their experience, trust from the pharmacists, respect and being taken seriously, and pharmacists' appreciation and advocacy for the profession had further enhanced the role of pharmacy technician. One of the pharmacists stated:

"We know where we are heading as a hospital pharmacy. Then it's about: how can we all, including the pharmacy technicians, contribute [to achieving our goals]? And then, at the first meeting of the newly composed team, we discussed and decided what they [the pharmacy technicians] would do [what would be their roles and duties]. Because yes, you achieve the most [optimal results] by making joint decisions and continuously work towards a common goal." (Pharmacist_P2)

3.6. Multi-layeredness and interaction of themes

It became clear from the stories and examples of the participants that some themes and actions had mutually reinforced each other, leading to successful introduction of the new role in an existing pharmacy practice setting. For example, presence of and commitment to a clear view of current and future pharmacy care activities ('a dot on the horizon') is considered a good starting point for change in pharmacy practice. A clear goal, in turn, will help align the team's expectations of the pharmacy technician's learning objectives and responsibilities. Then, the pharmacist and the pharmacy technician can mutually define the new role and comply with this definition. In the next step, the position and role of the pharmacy technician within both the team and the envisioned care provision can be organised and communicated. If the individual pharmacy technician makes sure to be accessible, easily approachable and to operate as a team member, this behavior can boost the development and acceptance of the pharmacy technician role.

Conversely, a negative ripple effect can occur when a pharmacy technician is pushed to perform tasks and responsibilities based on office politics and personal preferences of the pharmacist. If the pharmacy technician is also left alone in defending the new role, position and status, it can lead to growing social tensions that have a negative impact on the social relations within the team. This, in turn, can hamper the pharmacy technician's role development and growth, resulting in underutilization of the pharmacy technician's talents, and frustration and disappointment for the entire team.

4. Discussion

This qualitative study explored factors that influence development and implementation process of the of pharmacy technician role in existing pharmacy practice. Analysis of the interviews with pharmacy technicians, pharmacists and pharmacy assistants yielded five key themes that were interrelated. Two themes were at a more contextual level: (a) experiencing a lack of vision on the added value of the new role within the field of pharmacy and (b) learning climate. The other three themes were related to personal interactions between staff members: (c) role expectations and organisational fit, (d) personal traits of pharmacy technicians and (e) support of pharmacy technicians through task delegation and role enhancement.

The first contextual theme, experiencing a lack of vision on the added value of the new role within the field of pharmacy, has also been reported in other studies. For example, Goodrick and Rea stressed the importance of the interplay between professional task environments (the daily context) and the wider institutional environments (the professional field) in legitimizing new professional roles and creating meaning and acceptance of new roles and practices.³⁴ It is exactly this interplay between the field of pharmacy and the individual pharmacy practices that may be an important factor influencing the development and implementation process of the pharmacy technician role. Therefore, the importance of making the professional field aware of the added value of pharmacy technicians and collectively deciding on their scope of practice should go hand in hand with explicit procedural guidance on how to actually translate the extended scope of practice into activities and responsibilities for daily practice.³⁵

Similar to these findings on barriers to pharmacy technicians' role development are results from a study on pharmacy practice changes, in which pharmacists were allowed to perform at an advanced level of patient care. Even though the expansion of pharmacists' scope of practice was a formal one, it did not automatically empower them to practice at the top of their new license.³⁶ To put it simple: "allowing is not implementing".³⁷ Recognition of the added value of a new role, regardless of whether it concerns an expanded scope of practice (pharmacists) or the introduction of a completely new role (pharmacy technicians), clearly entails more than having a vision and allowing the new role. It also includes the intermediate steps of building capacity to develop and implement anticipated change. In view of these findings, the educational program for pharmacy technicians and the professional association of pharmacists should play a joint role in creating empowered pharmacy technicians who are ready to perform their roles and able to adapt to evolving pharmacy practice.

The observed themes that find their origin in personal interactions between pharmacists, pharmacy technicians and pharmacy assistants also resonate with previous research. For example, recent work on facilitating the integration of pharmacy technicians into community pharmacy practice also showed that the integration of the new role was influenced by team dynamics and delegation of tasks.¹⁷ In order for pharmacy technicians to develop their role, pharmacists need to loosen their grip on certain tasks they used to perform. However, as described in the results section, some pharmacists were not quite sold on the idea to transfer tasks to pharmacy technicians. They seemed concerned with identifying and protecting what they felt was their own work territory and critiquing the impact of the expected change on team dynamics. Since the appealing argument that pharmacists will be able to free up time does not seem to work, there may be a need for more practical strategies for delegating tasks. One approach could be stepwise delegation of tasks and responsibilities based on tasks difficulty, in order to ensure minimal patient risk. Small steps and clear communication on changing responsibilities and expectations between pharmacists, pharmacy technicians and pharmacy assistants are a prerequisite for success.

The findings of this study may help advance the development of the pharmacy technician role. Based on the results, the authors recommend that pharmacists and pharmacy technicians are stimulated to design a

shared goal for their pharmacy practice, in which pharmacy technicians can rise to their full potential. Furthermore, educational programs for pharmacy technicians should support self-efficacy and address professional identity formation. Bolstering self-efficacies for performing current and emergent roles is reported to be associated with greater involvement in areas such as medication order/prescription receipt, preparation, and dissemination, but also other work-related facets such as commitment.³⁸ Identity formation as an educational goal is an excellent way to inform aspiring pharmacy assistants and their pharmacists about the norms and standards of the new profession.³⁹

This study had several strengths. First, a key strength of this study was that it captured perspectives from all three kinds of pharmacy staff members – pharmacists, pharmacy technicians and pharmacy assistants – working in various pharmacies and different settings. In this way, the researchers were able to obtain multiple views on the integration and development of the new role. Second, a bottom-up interview approach was used, starting with the questions: ‘Can you provide a definition of a pharmacy technician?’ and ‘Does the actual situation in this particular practice match this definition?’. Care was taken to not let preconceived notions (of how the process of role development is supposed to proceed) affect the interview questions. Third, the interviews were conducted by the primary author (TK), who is well-informed about pharmacy practice and the educational program for pharmacy technicians. Fourth and finally, the varied backgrounds of the researchers in the team enhanced reflexivity, facilitated triangulation of data and reduced the chance of overlooking important information about how it actually works in pharmacy practice.

However, this study also had some limitations. First, recall and respondent bias may have occurred. Participants had to remember past experiences and, therefore, there could have been differences in accuracy and completeness of their recalled experiences. They also may have overreported their compliance with the new role due to social desirability. To limit these potential biases, multiple employees from each pharmacy setting were interviewed. Each participant was evoked to share personal experiences and tell the whole story. Second, there also may have been a slight bias in favour of the pharmacy technicians, since they were tasked with inviting two close colleagues with whom they were collaborating on a daily basis, a pharmacist and a pharmacy assistant, to participate in this study as well. This reflected a deliberate choice in the sample strategy to create a sense of safety for the pharmacy technicians. Reassuringly, the interview data from pharmacists and pharmacy assistants included positive comments as well as critical remarks with regard to the development and implementation of the new role. Third and finally, this study was conducted in the Dutch health care system, which may limit the transferability of these findings. To enhance the transferability of the findings, rich descriptions were used.^{40, 41}

These findings have several implications for future research in this area. For example, the authors would recommend further, more in-depth research into the importance of support, especially how to provide feedback and support to early career professionals.⁴² From a theoretical perspective, the obtained data can be associated with the organisational socialisation theory.^{43,44} This theory refers to a dynamic learning and adjustment process through which new employees transition into effective members of an organisation. It also applies to individuals who change jobs within an organisation, like the participating pharmacy technicians do.⁴⁴ Using this theoretical lens to understand the role development of pharmacy technicians, may generate even more insight in the underlying processes of role development for pharmacy technicians.

5. Conclusion

This research aimed to gain further insights into factors that influence the development and implementation process of the new role of pharmacy technician in pharmacy practice. The data clearly showed that the development and implementation of this new role and

profession is a slow and complicated process that may withhold pharmacy technicians from reaching their full potential. Five interrelated themes were identified that influence the development and implementation of the new role: two at a more contextual level within the pharmacy (experiencing a lack of vision on the added value of the new role within the field of pharmacy and learning climate) and three were related to personal interactions between pharmacists, pharmacy technicians and pharmacy assistants (role expectations and organisational fit, personal traits of pharmacy technicians and support to pharmacy technicians through task delegation and role enhancement). To advance pharmacy practice, to provide pharmacists with tools to effectively manage change and to promote role development of pharmacy technicians, these five themes need to be addressed and if needed, remediated. New knowledge uncovered from this study will benefit stakeholders such as policymakers, educators, pharmacists and last, but certainly not least, pharmacy technicians.

Author statement

Tamara Koehler: Project administration; Investigation; Data curation; Methodology; Formal analysis; Conceptualization; Roles/Writing - original draft; Writing - review & editing Floor Velthuis: Methodology; Validation; Visualization; Writing - review & editing Esther Helmich: Supervision; Validation; Writing - review & editing Michiel Westerman: Supervision; Validation; Writing - review & editing Debbie Jaarsma: Methodology; Validation; Supervision; Writing - review & editing.

References

- Hughes CA, Breault RR, Schindel TJ. A qualitative case study exploring the implementation of pharmacist care planning services in community pharmacies. *J Am Pharmaceut Assoc.* 2020;60(4):580–588. e2.
- Desselle SP. An in-depth examination into pharmacy technician workforce through an organizational behavior framework. *Res Soc Adm Pharm.* 2016;12(5):722–732.
- Nimmo CM, Holland RW. Transitions in pharmacy practice, part 2: who does what and why. *Am J Health Syst Pharm.* 1999;56(19):1981–1987.
- Rosenthal MM, Holmes ER. The professional culture of community pharmacy and the provision of MTM services. *Pharmacy.* 2018;6(25).
- Hohmeier KC, Garst A, Adkins L, Yu X, Desselle SP, Cost M. The optimizing care model: a novel community pharmacy approach to enhance patient care delivery by leveraging the technician workforce through technician product verification. *J Am Pharmaceut Assoc.* 2019;59(6):880–885.
- Auta A, Maz J, Strickland-Hodge B. Perceived facilitators to change in hospital pharmacy practice in England. *Int J Clin Pharm.* 2015;37(6):1068–1075.
- Schafheutle E, Jee S, Willis S. Fitness for purpose of pharmacy technician education and training in Great Britain. *Int J Pharm Pract.* 2015;23:20–21.
- Rosenthal MM, Austin Z, Tsuyuki RT. Barriers to pharmacy practice change: is it our nature or nurture? *Can Pharm J.* 2016;149(6):317–319.
- Sowell AJ, Pherson EC, Almuete VI, et al. Expansion of inpatient clinical pharmacy services through reallocation of pharmacists. *Am J Health Syst Pharm.* 2017;74(21):1806–1813.
- Fera T, Kanel KT, Bolinger ML, Fink AE, Iheasirim S. Clinical support role for a pharmacy technician within a primary care resource center. *Am J Health Syst Pharm.* 2018;75(3):139–144.
- The consensus of the pharmacy practice model summit. *Am J Health Syst Pharm.* 2011;68(12):1148–1152.
- Mattingly AN, Mattingly TJ. Advancing the role of the pharmacy technician: a systematic review. *J Am Pharmaceut Assoc.* 2018;58(1):94–108.
- Desselle SP, Mckeirnan KC, Hohmeier KC. Pharmacists ascribing value of technician certification using an organizational behavior framework. *Am J Health Syst Pharm.* 2020;77:457–465.
- Silverio SA, Cope LC, Bracken L, Bellis J, Peak M, Kaehne A. The implementation of a technician enhanced administration of medications [TEAM] model: an evaluative study of impact on working practices in a children's hospital. *Res Soc Adm Pharm.* 2020;16(12):1768–1774.
- Davidson TR, Hobbins MA, Blubaugh CM. Development and implementation of a pharmacy technician medication history program. *J Pharm Pract.* 2019:1–9.
- Adams AJ, Desselle S, Austin Z, Fenn T. Pharmacy technicians are people, too! let's consider their personal outcomes along with other pharmacy outcomes. *Ann Pharmacother.* 2019;53(5):545–547.
- Salameh L, Yeung D, Surkic N, Gregory P, Austin Z. Facilitating integration of regulated pharmacy technicians into community pharmacy practice in Ontario: results of an exploratory study. *Can Pharm J.* 2018;151(3):189–196.
- Gregory P, Austin Z. Conflict in community pharmacy practice: the experience of pharmacists, technicians and assistants. *Can Pharm J.* 2017;150(1):32–41.
- Gregory P, Austin Z. Professional identity formation: the experience of regulated pharmacy technicians in Ontario. *Can Pharm J.* 2020;153(1):46–51.

20. Roland C, Guérin A, Vaconsin P, Bussièrès J-F. Hospital pharmacy technicians practice and perceptions in France and Quebec, Canada. *Int J Pharm Pract.* 2019;27(3):271–278.
21. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med.* 2014;89(9):1245–1251.
22. Guba EG, Lincoln YS. *Competing Paradigms in Qualitative Research. Handbook of Qualitative Research.* Publisher: Sage Publications, Inc; 1994:105–117.
23. Koehler TC, Bok H, Westerman M, Jaarsma D. Developing a competency framework for pharmacy technicians: perspectives from the field. *Res Soc Adm Pharm.* 2019;15(5):514–520.
24. Kalu F, Bwalya J. What makes qualitative research good research? An exploratory analysis of critical elements. *Int J Soc Res Methodol.* 2017;5(2):43–56.
25. Teherani A, Martimianakis T, Stenfors-Hayes T, Wadhwa A, Varpio L. Choosing a qualitative research approach. *J Grad Med Educ.* 2015;7(4):669–670.
26. Charmaz K. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis.* Publisher: London: Sage Publications Ltd; 2006.
27. Brooks J, McCluskey S, Turley E, King N. The utility of template analysis in qualitative psychology research. *Qual Res Psychol.* 2015;12(2):202–222.
28. Hoeve YT, Brouwer J, Roodbol PF, Kunnen S. The importance of contextual, relational and cognitive factors for novice nurses' emotional state and affective commitment to the profession. A multilevel study. *J Adv Nurs.* 2018;74:2082–2093.
29. Maten-Speksnijder A, Pool A, Grypdonck M, Meurs P, van Staa A. Driven by ambitions: the nurse practitioner's role transition in Dutch hospital care. *J Nurs Scholarsh.* 2015;47(6):544–554.
30. Zwijnenberg NC, Bours GJ. Nurse practitioners and physician assistants in Dutch hospitals: their role, extent of substitution and facilitators and barriers experienced in the reallocation of tasks. *J Adv Nurs.* 2012;68(6):1235–1246.
31. Wallenburg I, Janssen M, de Bont A. *De rol van de verpleegkundig specialist en de physician assistant in de zorg.* Rotterdam: Erasmus Universiteit, iBMG; 2015.
32. Version 8.4. Scientific Software Development, Berlin. *ATLAS.ti.* Berlin: Scientific Software Development; 1999.
33. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE guide no. 131. *Med Teach.* 2020;42(8):846–854.
34. Goodrick E, Reay T. Florence nightingale endures: legitimizing a new professional role identity. *J Manag Stud.* 2010;47:55–84.
35. Gregory PAM, Teixeira B, Austin Z. What does it take to change practice? perspectives of pharmacists in Ontario. *Can Pharm J.* 2017;151(1):43–50.
36. Teixeira B, Gregory PAM, Austin Z. How are pharmacists in Ontario adapting to practice change? results of a qualitative analysis using Kotter's change management model. *Can Pharm J.* 2017;150(3):198–205.
37. Kotter JP, Schlesinger LA. Choosing strategies for change. In: *Readings in Strategic Management.* Springer; 1989:294–306.
38. Desselle SP, Hoh R, Holmes ER, Gill A, Zamora L. Pharmacy technician self-efficacies: insight to aid future education, staff development, and workforce planning. *Res Soc Adm Pharm.* 2018;14(6):581–588.
39. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. *Acad Med.* 2015;90(6):718–725.
40. Lincoln Y, Guba E. *Naturalistic Inquiry.* Newbury Park, CA: Sage Publications; 1985.
41. Creswell JW. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* third ed. Thousand Oaks, CA: SAGE Publications; 2009.
42. Mattick K, Brennan N, Briscoe S, Papoutsis C, Pearson M. Optimising feedback for early career professionals: a scoping review and new framework. *Med Educ.* 2019;53(4):355–368.
43. Chao GT, O'Leary-Kelly AM, Wolf S, Klein HJ, Gardner PD. Organizational socialization: its content and consequences. *J Appl Psychol.* 1994;79(5):730–743.
44. Bauer TN, Erdogan B. *Organizational Socialization: The Effective Onboarding of New Employees.* American Psychological Association; 2011:51–64.