It is the future. Clinical pharmaceutical care simply has to be a matter of course: community pharmacy clinical service providers' and service developers' views on complex implementation factors.

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"It is the future. Clinical pharmaceutical care simply has to be a matter of course." - Community pharmacy clinical service providers' and service developers' views on complex implementation factors

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ABSTRACT

Background: While there is a lot of documented evidence about the clinical and cost effectiveness of pharmacists' role extensions there is an inherent gap between service development and implementation.
Objective(s): This study aims to better understand the complex factors that influence the implementation of clinical pharmacy services from both the perspective of the community pharmacy service providers and service developers.
Methods: A prospective qualitative interview study using purposive sampling of twelve service developers and twelve community pharmacy service providers from across all nine Federal States of Austria. The validated and piloted interview guide contained questions and prompts on role perceptions, attitudes, experience, implementation barriers, training needs and measures identified to strengthen clinical pharmacy provision in community pharmacy. Verbatim quotes were independently mapped to the Framework for the Implementation of Services in Pharmacy (FISpH) by two researchers.
Results: 24 Interviews were carried out. Data saturation was achieved. There is a great deal of enthusiasm to develop the remit of clinical pharmacy services. It is seen as important to ensure the future survival of the profession. Service developers are more positive and confident in the implementation success and pharmacists' skills than providers. Clear mandates for politics, academia and individual pharmacists have been discussed to affect change.
Conclusions: Austrian pharmacists are facing the same well documented challenges as many other healthcare systems only with more urgency. The development of a clinical pharmacy service framework; education accreditation standard and a well-supported continuous professional development system are considered key to bring about the necessary culture shift.

1. Introduction

Pharmacists' role expansion has been continuous across most high-income countries[1,2] offering new health interventions and person-centred services designed to improve patient safety.[3] While the full scope of these services varies across jurisdictions, they traditionally range from pharmacist prescribing, prescription adaptation, medication reviews, ordering and interpreting lab test, vaccine injections to running specialised primary and secondary care clinics as well as hospital services.[4] Prior to the COVID-19 pandemic a study by Costa F.A. et al. (2017) determined that the provision of clinical pharmaceutical services by community pharmacists' remains limited across Europe.[5] According to the most recent position paper by the European Society of Clinical Pharmacy, clinical pharmacy represents both a professional practice and field of research with the aim to optimise the utilisation of medicines to achieve person-centred and public health goals as part of a multidisciplinary team.[6] While the full impact of the pandemic on the role expansion of pharmacists is not yet determined a recent study by Merks P. et al. (2021)[7] suggests that there has been an acceleration in legal extensions for pharmacists around the globe in order to renew chronic treatment prescriptions, immunise and fill emergency prescriptions as well as accelerating the implementation of ePrescriptions.

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Across central Europe, pharmacy practice ranges from full legal independent prescribing rights in the UK[8] to a more traditional supply and logistics function in southern and eastern European countries such as Poland.[9] In Austria, community pharmacists follow a more traditional role profile of supply, logistics and manufacture with pharmacy practice extensions of medicines use reviews and point-of-care testing being left up to the individual owners to provide, only some of which are remunerated (e.g. COVID tests).[48] Considering the global pressures of the ageing population, GP shortage and fewer available healthcare resources, community pharmacies across Austria are also seeking to extend their role profile to include medication analysis, immunization rights and the extension of point-of-care testing[10]

There is a lot of documented evidence about the clinical and cost effectiveness of pharmacists' role extensions across the published literature[7–18] but there is also an inherent gap between our collective desire to development more person-centred services in community pharmacy and their actual successful implementation to improve patient safety.[19] For many years implementation of such services was seen as a passive process assuming that their development and dissemination would translate into the diffusion and implementation into routine pharmacy practice.[20] As it is now understood, implementation is a complex, multi-factorial process and it is useful to use a theoretical lens to better understand the factors that affect implementation in any given healthcare context.[21] To determine the complex factors that influence the implementation efforts (also termed determinants of practice or barriers and facilitators), the Consolidation Framework for Implementation Research (CFIR) was developed by Damschroeder et al., in 2009[22] which followed on from the development of the Innovation ARC in the late 1990s[23] and added to by Moullin et al., in 2016 with the publication of the Framework for Implementation of Services in Pharmacy (FISpH) (Fig. 1.).[24]

A systematic review that explored pharmacy staff perspectives of the barriers and facilitators to implementing innovations highlighted the international challenge of balancing professional, clinical and commercial obligations within community pharmacy practice.[25] As Garcia-Cardenas postulates that while most studies aim to identify barriers and facilitators for implementation from the perspective of service providers they are often reported in a simplistic way without any regard for the stage of implementation or the cause or interrelationship between them.[21] This qualitative interview study aims to better understand the complex factors that influence the implementation efforts of Austrian pharmacists' from both the perspective of the community pharmacists (service provider) and key stakeholders who are developing clinical pharmacy service frameworks and support services for community pharmacists (service developer) by mapping the results to the Framework for Implementation of Services in Pharmacy (FISpH).

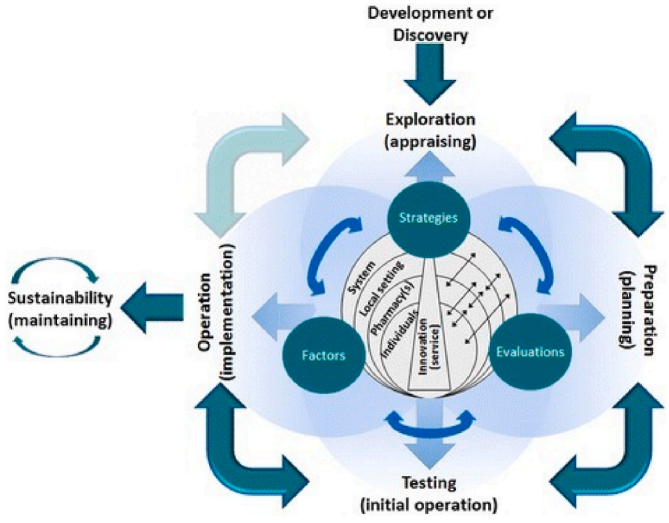

Fig. 1. Framework for the Implementation of Services in Pharamcy (FISpH). Taken from: Moulin JC, Sabater-Hernández D, Benrimoj SI. Qualitative study on the implementation of professional pharmacy services in Australian community pharmacies using framework analysis. *BMC Health Serv. Res.* 2016. 16:439.

2. Methods

Ethical approval for this study was obtained from the School Research Ethics Committee at the School of Pharmacy & Life Sciences, Robert Gordon University, Aberdeen, Scotland and the ethics committee of the city of Vienna, who advised that no local ethics approval was necessary. Written consent of all study participants was obtained prior to the interview.

2.1. Interview tool design

A semi-structured interview guide was developed based on a previously published tool designed by Brazinha and Fernandez-Limos (2014).[26] This tool was considered most suitable as it uses Borums theory of organisational change[27] and the social network theory[28] as guiding underpinning theoretical frameworks. The semi-structured

Table 1
Semi-structured telephone interview guide to investigate complex implementation factors for the implementation of clinical pharmacy services in community pharmacies across Austria.

Topic	Questions and prompts
Role perceptions	What do you perceive the current role of a community pharmacist in Austria to be? What would you consider to be the pharmacist's area of responsibility?
Attitudes	What is your attitude towards clinical pharmacy services provided by community pharmacists? Should Pharmacy offer more services? which ones? why not? Do you think clinical pharmacy services play a significant role in the day-to-day activity of a Pharmacist? can you elaborate or give an example – Why is this important? can you share with us why not?
Experience	What is your experience with the implementation of clinical pharmacy services? Do you offer any in your pharmacy? which ones? Did you offer any in the past? why were they stopped? Have you considered providing any in the future? ORWhich services could you see being offered in the future?
Implementation barriers	In your opinion, what do you think are the BARRIERS towards the implantation of such services in pharmacy? (e.g., time etc.)
Training needs	Which kind of training is necessary to provide clinical pharmacy services in community pharmacies? Have you had any training on a specific service? what kind? what type of training would you have liked to have received? Did you find the training was useful? can you elaborate or give an example? can you explain what was unhelpful about it?
Measures to strengthen clinical pharmacy provision	In your opinion what measures have to be taken in order to strengthen clinical pharmacy throughout community pharmacies in Austria? What kind of support does this require? (e.g., Chamber of Pharmacists or the Ministry or Health)
Other	Is there anything else you wish to add?

interview guide used in this study was adapted to the stakeholder type interviewed (Table 1). It contained open questions and prompts on role perceptions, attitudes, experience, implementation barriers, training needs and measures identified to strengthen clinical pharmacy provision in community pharmacy. The semi-structured interview guide was validated for face and content validity by two research experienced pharmacists independent to the study and piloted in one service provider and one service developer. As no changes resulted from the pilot study the results were included in the main data set for analysis.

2.2. Participant selection

Purposive sampling was used to include community and hospital pharmacists and key stakeholders who are actively involved in the development of clinical pharmacy service frameworks and service implementation for community pharmacists (developers B) and community pharmacists who focus on their delivery (providers A). "Clinical Pharmacy Service (CPS) providers (A)" are defined as qualified pharmacists who have not completed any post-graduate education in clinical pharmacy and who work within community pharmacy but are not involved in any organisational aspects of CPS. "Clinical Pharmacy Service (CPS) developers (B)" are defined as qualified pharmacists who have completed a post-graduate qualification in clinical pharmacy and are actively involved in the development of clinical pharmacy service frameworks and/or support services for community pharmacists. Developers across all sectors (community, hospital or regulatory) were included in the study. Trainee pharmacists and pharmacists with any involvement in the study were excluded. This information and associate contact details are held by the Austrian Chamber of Pharmacists. Participants on that list had previously consented for their details to be held and to be contacted for research purposes.

2.3. Setting, data collection and data management

Potential participants across all nine Federal States of Austria were contacted by telephone by a study-independent representative from the Austrian Chamber of Pharmacists. Any potential participant interested in taking part in the study provided written informed consent to participate, which was verbally re-confirmed at the start of each interview. Telephone interviews conducted by the lead pharmacist researcher (SD/male) lasted approx. 20min, were audio recorded and transcribed verbatim. No one else was present at the time of data collection. Interviews were conducted between January 2019 and February 2019. Transcription accuracy and reliability was double checked by a researcher independent to the study on a random 10% of transcripts prior to full anonymisation. Recruitment was continued until data saturation was achieved[29] using the principle of a stopping criterion of three to determine the endpoint for recruitment.[30] Interviews were conducted in the German language.

2.4. Data analysis

Statements within all transcripts were coded against all domains of the Framework for the Implementation of Services in Pharmacy (FISpH).[24] Domains include *Innovation Characteristics, Local Setting, External System, Organisation and Individuals*. Coding of all transcripts was done independently by two experienced pharmacy researchers (AEW, SD) with any discrepancies resolved by discussion with a third experienced pharmacy researcher (MH). No thematic analysis software was used. The completed set of coded statements was checked independently by two researchers (SD, MH) to ensure coding consistency but participants were not asked to provide feedback on the findings. Verbatim quotes are used to present and support implementation themes and concepts (Tables 4 and 5). Quotes from the German interviews were translated into the English language by the researcher (SD) followed by reverse-translation by a second researcher (AEW) fluent in both languages. This ensured the precise contextual meaning of the original quotes.

2.5. Reflexivity

All authors (SD, MH, AEW) are qualified research pharmacists with experience in community pharmacy practice and qualitative research including conducting but not exclusive to qualitative interviews. Two have a background in regulatory affairs one has experience in teaching and training pharmacists in pharmacy service provision.

2.6. Reporting qualitative research

The consolidated criteria for reporting qualitative research (COREQ) checklist aimed at ensuring the quality of reporting of qualitative research, was used to guide the reporting of this research.[31] Trustworthiness was assured by consideration of the concepts of credibility, dependability, transferability and confirmability postulated by Lincoln and Guba.[32] The study adopted a prospective qualitative interview study design using framework analysis to allow a more data rich exploration of service provider & service developers experiences and views of their implementation efforts of enhanced person-centred services in community pharmacy.

3. Results

3.1. Demographics

Out of 13 clinical pharmacy service developers (A), and 13 clinical pharmacy service providers (B) invited to participate, 92% (n = 24) agreed with an even number of twelve interviews conducted in each group (Table 2). Thematic data saturation was achieved in each group. While all twelve CPS providers were community pharmacists the CPS developers included both hospital and community pharmacists. Participants represented eight out of nine Austrian federal states. An overview of the facilitators and barriers identified against the relevant FISpH domain can be found in Table 3, with representative quotes illustrated in Tables 4 and 5

3.2. Innovation characteristics

The extension of clinical pharmacy services (CPS) in community pharmacies across Austria is seen as imperative by both service developers and providers.

> "[It] is the future. Clinical pharmaceutical care must simply be a matter of course. Just as natural as a check-up […]. Patients have a right to the safety of [their] medication. The GP is too stretched." [B9]

They consider CPS to be the key competence of pharmacists with the integration of these services into the healthcare system being seen as needed to future proof traditional community pharmacies.

Table 2
Sociodemographic factors of Pharmacy service providers (A) and developers (B) included in this study.

	Group A Provider	Group B Developers	Total
Male	4 (16.7%)	5 (20.8%)	9 (37.5%)
Female	8 (33.3%)	7 (29.2%)	15 (62.5%)
Age < 50	10 (41.7%)	8 (33.3%)	18 (75.0%)
Age > 50	2 (8.3%)	4 (16.7%)	6 (25.0%)
Pharmacy manager	4 (16.7%)	4 (16.7%)	8 (33.3%)
Employee	8 (33.3%)	8 (33.3%)	16 (66.7%)

Table 3
Summary of barriers (b) and facilitators (f), for the implementation of medication reviews (MR) in Austrian community pharmacies mapped against the FISpH domains.

MR characteristics		A Provider	B Developer
1	Source	✓ (b)	✓ (b)
2	Evidence strength & quality	✓ (f)	✓ (f)
3	Relative advantage		
3a	Direct financial benefits	x	x
3b	Other organisational benefits	✓ (b)	✓ (b)
3c	Patient benefits	✓ (f/b)	✓ (f)
3d	Professional/personal benefits	✓ (f/b)	✓ (f)
4	Adaptability	x	✓ (b)
5	Trialability	✓ (b)	✓ (b)
6	Implementation complexity	✓ (f/b)	✓ (f/b)
7	Design quality & packaging	x	x
8	Cost	✓ (b)	✓ (b)
9	Nature of MRs	x	x
10	Duration	x	x
Local setting			
1	Intraprofessional network & communication	x	x
2	Interprofessional network & communication	x	x
3	Community's perception about MR and the pharmacy	✓ (b)	✓ (b)
4	Relationship with patients and community	✓ (f/b)	✓ (b)
5	Demand	✓ (f/b)	✓ (b)
6	Patient needs & resources	✓ (b)	✓ (f)
7	Peer pressure	✓ (f)	x
External system			
1	Laws, policies or regulations	x	✓ (f)
2	Remuneration	✓ (b)	✓ (b)
3	Healthcare budget & contracts	x	x
4	Intraprofessional networks & communications	✓ (f)	x
5	Interprofessional networks & communication	✓ (f/b)	✓ (f/b)
6	Stakeholder buy-in	✓ (b)	✓ (b)
7	External support and/or assistance	✓ (b)	✓ (f/b)
Organisation			
1	Structural characteristics	x	x
2	Staff	✓ (b)	✓ (b)
3	Layout & workflow	x	x
4	Networks & internal communication	x	x
5	Teamwork	x	x
6	Autonomy	x	x
7	Culture & vision	✓ (b)	✓ (b)
8	Implementation climate		
8a	Tension for change	✓ (f)	✓ (f/b)
8b	Compatibility	✓ (f/b)	✓ (f/b)
8c	Relative priority	✓ (b)	✓ (f)
8d	Organisational incentives & rewards	x	x
8e	Goal setting	x	x
8f	Feedback	x	x
8g	Learning climate	x	x
9	Readiness for implementation		
9a	Leadership engagement	x	x
9b	Available resources & training	✓ (f/b)	✓ (f/b)
9c	Access to knowledge & information	✓ (f/b)	✓ (b)
10	Data management system	✓ (b)	x
11	Quality assurance system	x	x
12	Environmental stressors	x	x
13	Organisational support and/or assistance	x	x
14	Experience	x	x
Individuals			
1	General knowledge	x	x
2	Knowledge about MRs	✓ (f)	x
3	Beliefs about MRs	✓ (f)	✓ (f)
4	Self-efficacy	✓ (b)	✓ (f/b)
5	Individual state of change		
5a	Technical skills (experience, capacity & competence)	x	✓ (f/b)
5b	Interpersonal skills (experience, capacity & competence)	x	x
6	Individual identification with organisation	x	x
7	Other personal attributes	x	✓ (b)
8	Values & motivation	x	x
9	Leadership skills	x	x
10	Memory, attention and decision processes	x	x

> "[It is] absolutely necessary [since the] continued existence of the pharmacies in their current form is at risk. Sooner or later medicines will also be sold elsewhere." [B6]

However, service providers recognise that customers are not presently aware of the availability of CPS, reporting to be reduced to having a mere logistics function in the eye of the general public

> "In the public opinion, the community pharmacist is reduced to a logistics service. But in truth they do a whole lot more, the keyword here is triage." [B5]

A lack of unified professional approach and a perceived lack of respect compared to medical prescribers was seen as a barrier alongside the current complexity and impracticability of existing services. Compared to CPS providers there was a higher degree of frustration amongst CPS developers around the lack of legal support and representation in order to allow the extension of the community pharmacists remit.

> "I think so far it's been individually motivated colleagues who have proactively gone ahead and done something. What is missing is the backing of the Chamber and proper advertising. That's the key. Without it, a project like this cannot succeed." [B8]

3.3. Local setting

There is a cautious optimism that certain population groups will welcome CPS in community pharmacy and may even ask their prescribing physician directly to be referred.

> "I wouldn't consider the acceptance rates by the population as problematic. It's not like they're saying that pharmacists don't have a clue. […]. We get a lot of questions about contraindications and whether therapy is justified." [A5]

The addition of the new electronic patient record (ELGA) is also considered as a positive development to increase the complexity of interaction checks performed on a routine basis. However, the general lack of awareness of what a patient can expect from their community pharmacy is still considered a major barrier and patients will likely not understand the delineation in roles and responsibilities between prescriber and pharmacists if CPS are extended.

> "Customers won't understand. What do they go to the doctor for […]? Why does the doctor write a prescription and why does the pharmacist then have to check it?" [A3]

Service developers are optimistic that a structured advertising campaign will help to educate the wider general public and help to draw people into community pharmacy, while being mindful of protecting the patient's trust. Both study groups emphasise the importance of communication with the patient and wider public.

Table 4
Summary of community pharmacy service providers (A) representative quotes by FISpH domain (MR – medication review).

MR Characteristics	Local setting	External System	Organisation	Individuals
1. Source	**3. Community's perception about MR and the pharmacy**	**2. Remuneration**	**2. Staff**	**2. Knowledge about CPS**
Facilitators: *N/A* *Barriers:* *This is an important task that is not fully understood politically. The law is not ideal for this. [A5]*	*Facilitators:* *I wouldn't consider the acceptance rates by the population as problematic. It's not like they're saying that pharmacists don't have a clue. […]. We get a lot of questions about contraindications and whether therapy is justified [A5].* *Barriers:* *Customers won't understand. What do they go to the doctor for […]. Why does the doctor write a prescription and why does the pharmacist then have to check it? [A3].*	*Facilitators:* *N/A* *Barriers:* *There is no uniform regulation for the whole of Austria. [A4]* *In any case financial support is needed, […] because employees have to be paid.* [A7]	*Facilitators:* *N/A* *Barriers:* *It is very difficult to implement. It would certainly be very important to have the space for it in the pharmacy. […] in addition to normal operations when it is loud, concentration may be difficult and data protection is a problem; […] Staff resources are not available and suitable premises are not available. [A7]*	*Facilitators:* In principle, I think it's very important. When I look at patients' polymedication […]. [A7] *Barriers:* *N/A*
2. Evidence strength & quality	**4. Relationship with patients and community**	**3. Intraprofessional network & communication**	**7. Culture and vision**	**3. Beliefs about CPS**
Facilitators: *It should definitely be pushed more […] that's what we trained for and can do. [A4]* *Barriers:* *N/A*	*Facilitators:* *I believe that the communication between the patient and the pharmacist is different than with the prescriber. People dare to ask other things than at the doctors. [A6]* *Barriers:* *[You have to let the] customers know that you have an education. [A4]*	*Facilitators:* *Nursing care is also very important. It is often the nursing staff who come to pharmacy and not the patient himself. [A6]* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* *To be honest, I'm rather pessimistic because I know the day to day running of a pharmacy. [A9]*	*Facilitators:* *We are an important player in the healthcare system in cooperation with other healthcare professions […]. [A5]* *In my opinion we do medication management every day when people come and talk about their medication […]. [A2]* *Barriers:* *N/A*
3b. Other organisational benefits	**5. Demand**	**4. Interprofessional networks & communication**	**8a. Tension for change**	**4. Self-efficacy**
Facilitators: *N/A* *Barriers:* *People don't know this service exists. They are surprised when you say bring it [medication] along. They enjoy the fact that we take the time. The doctor doesn't take the time anymore or can't afford to as it is not covered by the health insurance. [A10]*	*Facilitators:* *I don't think it would be so bad […] if the patients themselves asked for it [medication reviews]. If they asked the prescriber if they know a pharmacy that offers this? [A7]* *Barriers: [Customer request] I experience it again and again. Many don't even want to know what we offer […] [A7]*	*Facilitators: [Doctors] are our partners. [It] should actually be a triangular communication (patient, prescriber, pharmacist) if possible. [A6]* *In my experience it [medication review services] is well received in care homes. [A4]* *Barriers:* *Communication with doctors can be very difficult. […] The competition is still in people's minds. [A4]* *Doctors and pharmacists should already learn mutual respect during their undergraduate degree […] and that all health professions work together. [A12]* *Make it clear to doctors that nothing will be taken away from them. That it is a sensible offer that will ultimately reduce the pressure on them [doctors]. [A2]*	*Facilitators:* *Yes, I would welcome this. […] It is the exact direction of travel it should go. [A10]* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* *If someone is discharged from hospital with 15 different medications and the prescriber doesn't dare to stop any medication, then I certainly [don't feel qualified enough] to do so. [A8]*
3c. Patient benefits	**6. Patient needs & resources**	**6. Stakeholder buy-in**	**8b. Compatability**	
Facilitators: *A kind of progress control, not necessarily checking the success of the therapy, but the usefulness of further prescriptions must definitely be questioned. [A6]* *Barriers:* *Completely useless, […].* *I must not interfere with [patients] medication. [A8]*	*Facilitators:* *N/A* *Barriers:* *I see patients with inappropriate prescriptions and interactions every day, […] it is a real double-edged sword as you don't want to go undermine the doctor or interfere with the medication […]. [A4]*	*Facilitators:* *N/A* *Barriers:* *That doesn't work well […] Doctors weren't informed so there were a lot of misunderstandings. Doctors […] didn't know what to expect. [A4]*	*Facilitators:* *A quick check at the counter is definitely no problem. I would say there is enough time for that. Colleagues have to be committed however. I don't know if it's happening across the board. [A5]* *Barriers:* *There is also a lack of routine. [You have to] do it permanently, otherwise you forget it again. [A2]*	
3d. Professional/personal benefit	**7. Peer pressure**	**7. External support and/or assistance**	**8c. Relative priority**	

(*continued on next page*)

Table 4 (*continued*)

MR Characteristics	Local setting	External System	Organisation	Individuals
Facilitators: Things are already happening. But that could of course be done more professionally. [A5] *Barriers:* *Medication management - sure is a good idea, [but we] are not taken as seriously as doctors. [A3]*	*Facilitators:* *Many colleagues are already doing interaction checks. […] With ELGA (electronic medication profile), […] this will certainly be raised to a new level. [A5* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* *I would say that the first step would be to enshrine it in law. I think it has already been mentioned in the government program, but it hasn't actually been implemented yet. [A5] There are no standards or guidelines for prescribing in Austria. Doctors often fail to follow guidelines. Policies and Standard operating procedures would make collaboration easier. [A12]*	*Facilitators:* *N/A* *Barriers:* *Make it clear to pharmacy owners that they make time available for employees. [A5]* .	
5. Trialability			**9b. Available resources & training**	
Facilitators: *N/A* *Barriers:* *In our district it was quite difficult to implement, that people bring their own medication into the pharmacy. It's really a very lengthy process. […] and if more people had come, it would not have been feasible. [A11]*			*Facilitators:* *"[I] could definitely imagine dividing my team up so that everyone does it for at least an hour, but it has to be financed of course. Is an hour even enough? [A6]* *Barriers:* *Many do the training, but then you need help with getting started and help to put their learning into practice. This has a lot to do with project management. [A4]*	
6. Implementation complexity			**9c. Access to knowledge & information**	
Facilitators: *In community pharmacies a lot of knowledge can be found in one place; triage function, patient care and drug delivery as well as caring for the chronically ill. Medication monitoring, especially help with bottlenecks and at the weekend GPs are not available. [A7]* *Barriers:* *Medication management […] is far too time-consuming. It is not practicable […] but must be remunerated as it is an additional service. [A4]*			*Facilitators:* *Permanent in the sense of an online or computer-aided refresher of content. [A2]* *I find that a medical newsletter or a short test via WhatsApp would be helpful […]. [A2]* *The [undergraduate] curriculum has to change fundamentally. [A8]* *Barriers:* *Up until now, you finished your degree and it was simply expected that you can offer clinical services. However, it's incredibly difficult if you've never done it before. Another obstacle is definitely*	
8. Cost			**10. Data management system**	
Facilitators: *N/A* *Barriers:* *Remuneration. A lot of it is currently done for free. When regular customers come in, we do take a closer look at their medication. But this is not remunerated. Sadly, there is no national remuneration agreement for Austria. [A5]* *Cost is an issue as people are not willing to pay for it. Advice has always been free. [A9]*			***Facilitators:*** ***N/A*** *Barriers:* *We would need a computer assisted tool. One that is quick to use and that tells you what problems the patient could face as a result of their medication. [A2]*	

"[A] way of advertising to raise awareness among the population that we have this skill. To encourage people to come to the pharmacy." [B10]

3.4. External system

The dominating themes around the relationship between community pharmacists and their external environment centre on their relationship between medical healthcare professionals, health insurance companies who provide potential remuneration frameworks and politics. Despite the lack of collegiate exchange and clear demarcation of the medical profession towards CPS both providers and developers see medical prescribers as partners in patient safety and not as an opponent and as such do not seem to share the same hostility which is often leveraged

Table 5
Summary of community pharmacy service developers (B) representative quotes by FISpH domain (MR – medication review).

MR Characteristics	Local setting	External System	Organisation	Individuals
1. Source	**3. Community's perception about MR and the pharmacy**	**1. Laws policies or regulations**	**2. Staff**	**3. Beliefs about CPS**
Facilitators: *N/A* *Barriers:* *I think so far it's been individual motivated colleagues who have proactively gone ahead and done something. What is missing is the backing of the Chamber and proper advertising. That's the key. Without it, a project like this cannot succeed. [B8]*	*Facilitators:* *N/A* *Barriers: [Patients] lack awareness [but] people who trust pharmacies are gratefully accepting of it [review service]. However, this is currently only achieved by recommendation and is not yet an established service. [B4]*	*Facilitators:* *Political lobbying. Of course we need the financial support of the insurance companies […] The political lobbying is certainly the Chambers responsibility. [B7]* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* *Is a question of time, resources, and money.* [B1]	*Facilitators:* It's not imperative to start with the a full [medication review] service. You can start small by doing a quick check at the counter and providing a lot more advice on the medication itself. [B8] *[It is the] most exciting task at the moment. A win-win-win-win situation: it has benefits for pharmacies, pharmacists, patients and the regulatory body.* [B1] *Barriers:* *N/A*
2. Evidence strength & quality	**4. Relationship with patients and community**	**2. Remuneration**	**7. Culture and vision**	**4. Self-efficacy**
Facilitators: *I find a patient centred clinical-pharmaceutical service in community pharmacies as important as in the hospital setting. As you can prevent many hospital admissions […], this can save a lot of suffering as well as direct and indirect healthcare cost. [B9]* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* The patient must not become unsettled. [*B6]*	*Facilitators:* *N/A* *Barriers:* *It has to be remunerated of course. [B6]* *Remuneration is essential*	*Facilitators:* *N/A* *Barriers:* *For many, it's only the turnover that counts. This is bad for the self-confidence of employed Pharmacists. [B6]* *What is missing is the backing of the chamber that allows implementation. […] It's the message that counts: we'll do it; we fully support you. [B8]* *External advertising. Not just internal application and representation. [B8]*	*Facilitators:* Personally, I enjoy further education and training. It is difficult to generalise what is required. You have to ask yourself, where are you now and where do you want to be in the future. [B11] *Barriers:* *Pharmacists have to realise that it's a skill they already possess. They are often surprised at how little time it [getting up to speed] takes when they want to do it.* [B4]
3b. Other organisational benefits	**5. Demand**	**4. Interprofessional networks & communication**	**8a. Tension for change**	**5a. Technical skills**
Facilitators: *N/A* *Barriers: [It is] absolutely necessary [since the] continued existence of the pharmacies in their current form is at risk. Sooner or later medicines will also be sold elsewhere. [B6]*	*Facilitators:* *N/A* *Barriers:* *People don't know this service exists. [B10]*	*Facilitators: [The] future goal is to work much more interdisciplinary, on an equal footing [with] more joint training opportunities with doctors. [B2]* *Barriers:* *A lack of awareness of the service - which raises concerns among many older doctors – they are not used to listen to the pharmacist. Younger doctors are more willing to listen [B4]*	*Facilitators:* *With a little simplification and sufficient time, [clinical pharmacy] will progress, if no one else [healthcare group] snatches it up by then. [B4]* *Barriers:* *It is our future. If we don't manage that, we will become redundant. [B12]*	*Facilitators:* It has great potential. *[B11]* *Barriers:* *Pharmacists do not yet feel very competent in this area - hence more training is needed. [B3]* *Barriers:* *N/A*
3c.Patient benefits	**6. Patient needs & resources**	**6. Stakeholder buy-in**	**8b. Compatibility**	**7. Other personal attributes**
Facilitators: *The low-threshold access. [B11]* *Barriers:* *N/A*	*Facilitator: [A] way of advertising to raise awareness among the population that we have this skill. To encourage people to come to the pharmacy. [B10]* *Barriers:* *N/A*	*Facilitators:* *N/A* *Barriers:* *Old projects have been very polarising. [B4]*	*Facilitators:* *I believe that people (pharmacists) can do a lot more than people give them credit for. [B8]* *As the pharmacy manager, I have tried to provide further training opportunities for my employees, in order for them to have the tools they need. I have helped them to take action: Check dosages for specific patient groups such as children or the elderly. Medication analysis was more of an exception in those days [B9]* *Barriers:* *The most important measures lie with the pharmacists themselves. It is not enough to make demands and wait for a complete service package to be delivered.* *Pharmacists must start and offer*	*Facilitators:* *N/A* *Barriers:* *The pride of some colleagues on both sides. [B12]*

(*continued on next page*)

Table 5 (*continued*)

MR Characteristics	Local setting	External System	Organisation	Individuals
			services themselves, deliver on the numbers and fight for the market segment. [B4]	
3d. Professional/personal benefit		***7. External support and/or assistance***	**8c. Relative priority**	
Facilitators: *[It] is the future. Clinical pharmaceutical care must simply be a matter of course. Just as natural as an annual preventive check-up […] you should have your medication checked regularly. Patients pay health insurance contributions. Patient have a right to safe medication. [B9]* *Barriers:* *N/A*		*Facilitators:* *The responsible officials within the chamber must work up ideas [and] create acceptance from those who are supposed to pay [for services] (ministry, health spokespersons, parties, patient advocates) [B1]* *Barriers:* *The chamber has to provide education because the university doesn't. [B2]*	*Facilitators:* *Safety checks and medication analysis should be available in all pharmacies. I'm not for the specialization of community pharmacies, [these are] core competencies. Everyone should be able to do it. [B1]* *We need a commitment to integrate clinical-pharmaceutical services into daily processes. The community pharmacist should offer these more. [B7]* *Barriers:* *N/A*	
4. Adaptability			***9b. Available resources & training***	
Facilitators: *N/A* *Barriers:* *It has to be set up in such a way that people can actually do it.[B1]*			*Facilitators:* *A software where you can scan and don't have to enter everything manually. [B8]* *Pharmacology can, for example, also be acquired through e-learning. Continuous professional development. [B9]* *There will be better access to [patient] data with ELGA and a better tracking of which drugs a patient takes. [B10]* *Barriers:* *Pharmacists need to have time at their disposal. Pharmacies need to be remunerated so they can afford the time; a designated space to focus; access to electronic programs, literature, peer discussions and networking […] Competence, space, time, and additional training opportunities. [B12]* *It is not realistic that every pharmacist has to go on to do a [postgraduate] master's degree after completing an extensive undergraduate course. [B6]One barrier is that the practice-relevant knowledge among pharmacists is not yet there. [B10]*	
5. Trialability			**9c. Access to knowledge & information**	
Facilitators: *N/A* *Barriers:* *The previous [medication analysis] project [did] work well, had great participation with a lot of colleagues showing an interest, but why wasn't it embedded into daily practice? The problem: practice conditions [B3]*			*Facilitators:* *N/A* *Barriers:* *I am of the opinion that specialist training is necessary. Having solely pharmacological knowledge is not enough. The aim is to use this pharmacological knowledge appropriately in the clinical setting, in everyday clinical practice. [I] need to know how the prescriber thinks? What is important to the prescriber? What does the caregiver think? What else is important when caring for patients? [B9]*	

(*continued on next page*)

Table 5 (*continued*)

MR Characteristics	Local setting	External System	Organisation	Individuals
6. Implementation complexity *Facilitators:* *When it comes to dispensing medication, I, as the pharmacist, already feel responsible for the correct dosage, instructions, and interactions with other medications. I already believe that we are the final check. […] We may not yet do a complex medication analysis routinely, but we are the final check before the patient takes his medication. [B7]* *Barriers:* *In the public opinion, the community pharmacist is reduced to a logistics service. But in truth they do a whole lot more, the keyword here is triage. [B5]*				
8. Cost				
Facilitators: *N/A* *Barriers:* *The most crucial [obstacle] is the cost-benefit calculation, that's the key. [B7]*				

against them.

> "[Doctors] are our partners. [It] should actually be a triangular communication [patient, prescriber, pharmacist] if possible." [A6]

There is an appreciation that this is a historical issue down to a lack of appropriate communication where medical healthcare professionals were not properly informed about CPS initiatives in the past which resulted in misunderstandings and frustrations on both sides.

> "That doesn't work well […] Doctors weren't informed so there were a lot of misunderstandings. Doctors […] didn't know what to expect." [A4]

There is a great deal of optimism that younger medics have a different attitude towards pharmacists

> "It is certainly the attitude of some doctors. Younger generations are changing." [A4]

Providers also report a much better working relationships with carers in both the care home setting and in community care. The need for these services to be enshrined in law and an appropriate remuneration framework is something both sides recognise as a major barrier

> "The responsible officials within the chamber must work up ideas [and] create acceptance from those who are supposed to pay [for services] (ministry, health spokespersons, parties, patient advocates)." [B1]

Developers do recognise that it is their responsibility to engender acceptance within politics, other professional groups and insurance companies, improve access to patient medication records and develop clear service implementation guidelines. Education also seems a contentious point with calls for interdisciplinary teaching at an undergraduate stage to foster more understanding between the professions and more tertiary level postgraduate teaching opportunities which are currently only provided by the Chamber of pharmacist not universities

> "[The] future goal is to work much more interdisciplinary, on an equal footing [with] more joint training opportunities with doctors." [B2]

3.5. Organisation

Both study cohorts report a need for a culture shift away from a mainly sales-based business model which leaves little room for time resource intense patient care. This is reported to negatively affect the employed pharmacists' self-confidence.

> "What is missing is the backing of the chamber that allows implementation. […] It's the message that counts we'll do it; we fully support you." [B8]

Developers are disappointed in the lack of a more assertive plans from the Austrian pharmaceutical chamber in order to implement lasting change. Some pharmacists actively encourage patient centred services within their daily practice, try to support the upskilling of their staff and do believe that pharmacists can do more than they are being given credit for.

> "As the pharmacy manager, I have tried to provide further training opportunities for my colleagues, in order for them to have the tools they need. I have helped them to take action: Check dosages for specific patient groups such as children or the elderly. Medication analysis was more of an exception in those days." [B9]

They recognise, however, that it requires the individual's attitude and commitment to be responsible for the initiation of change. An attitude that is not uniformly shared with the reticence of some pharmacists who'd rather wait until they are handed a fully worked up implementation model by the regulators.

> "The most important measures lie with the pharmacists themselves. It is not enough to make demands and wait for a complete service package to be delivered. Pharmacists must start and offer services themselves, deliver on the numbers and fight for the right to deliver clinical pharmacy services." [B4]

Lack of practice opportunities and a defined skills gap are also identified as prominent barriers. Developers share a clear unanimous view that CPS is wanted and worth investing in. They see it as one of the pharmacist's core competencies and something everyone should be offering especially since there is a risk that this opportunity may pass them by

"With a little simplification and sufficient time, [clinical pharmacy] will progress, if no one else [healthcare group] snatches it up by then." [B4]

Deliverers on the other hand are more sceptical, they can't yet identify quite how a balance between time resource and sales volume can be achieved.

"To be honest, I'm rather pessimistic as I am familiar with the daily practices in community pharmacy." [A9]

The same resource barriers are being reported by both study groups, namely time, money, space, competency, role definition, uniform computer system and education. However definite facilitators have been identified such as a scanning software that reduces errors and time needed, use of novel e-learning technology to upskill staff, the introduction of the electronic medication record (ELGA), the introduction of a separate consultation area and proper staff rotation to manage time resources.

"[I] could definitely imagine dividing my team up so that everyone does it for at least an hour, but of course it has to be financed. Is an hour even enough?" [A6]

While access to knowledge is not considered a barrier the lack of the continuous nature of training is. Undergraduate education is often seen as lacking the required clinical training with few postgraduate opportunities available at universities

"The [Undergraduate] Pharmacy degree has to change fundamentally." [A8]

Workshops, seminars and other training provided by the pharmaceutical chamber is well received but only delivered in a short-course format and does not offer a practice based continuous professional development opportunity. A separate two-year postgraduate master's degree -while seen as desirable -is not very practicable.

"It is not realistic that every pharmacist has to go on to do a [postgraduate] master's degree after completing an extensive undergraduate course." [B6]

4. Individuals

Both study groups display a very positive attitude towards the extension of CPS in community pharmacy. Developers consider the extension of CPS the most exciting development at present which will results in a win-win for pharmacies, pharmacists, patients and the regulatory body.

"[It is the] most exciting task at the moment. A win-win-win-win situation: it has benefits for pharmacies, pharmacists, patients and the regulatory body." [B1]

There is a split between confident optimistic pharmacists and those that do not yet have the self-belief that they have the innate skills required and need training.

"Pharmacists have to realise that it's a skill they already possess. They are often surprised at how little time it [getting up to speed] takes when they want to do it." [B4]

The attitude of colleagues is also mentioned by deliverers

"The arrogance of some colleagues on both sides." [B12]

5. Discussion

This study shows that there is a great deal of acceptance to develop the remit of clinical pharmacy services within the profession among all participants. This role extension is not just seen as desirable but as imperative, in order to advance the future of the profession. While service developers see clinical skills as a key competence of all pharmacists, community pharmacists (service providers) themselves often lack confidence in their clinical abilities [*Innovation Characteristics*]. While there is a great deal of optimism that patients will be open minded towards more clinical services being offered by pharmacists, all participants report that the general public is simply not aware of a pharmacist's skill set and training. There is a strong call for a sustained national advertising campaign to raise public awareness [*Local setting*]. One major barrier is the sometimes poor relationship with prescribers which often impairs interdisciplinary working. There is however cautious optimism that this is slowly changing, and service developers do see it as their responsibility to engender acceptance among the medical profession [*External System*]. There is a strong sense that while clinical pharmacy services are imperative, their integration into everyday working practices requires a complete culture shift away from a mainly sales-based business model towards a more service driven remuneration. While community pharmacists (service providers) expect the Pharmaceutical Chamber to deliver a worked-up model that can be easily implemented in all pharmacies, service developers see it as the responsibility of every single pharmacists to start developing their own initiatives and help deliver the vital evidence required for the development of such services [*Organisation*]. While service developers think that community pharmacists need to learn to trust in their own clinical abilities, community pharmacists (service providers) are less convinced [*Individual*] and there is a clear consensus that pharmacy education in Austria, both undergraduate and postgraduate, needs adaptation in order to support the clinical skills development needed to allow pharmacists to maximise their contribution to patient safety in the future. This is in line with the recently published FIP global call to action for advancing pharmaceutical education advocating a needs-based, concerted, strong and effective approach to improving and advancing pharmaceutical practice and science through education, now and in the future.[33]

Over the past decade many studies have investigated barriers and facilitators for the implementation of clinical services in community pharmacies.[34] Well documented barriers focus on the resource provision of clinical services mainly including money, space, competency, role definition, a uniform computer system and education.[35] While these barriers were also a concern in this study, the alignment of the qualitative analysis with the FISpH domains allowed a more differentiated look at other key factors. The re-professionalisation of pharmacists has been a widely discussed topic for the past two decades.[36] In Europe, countries such as the UK, Netherlands, Belgium, Switzerland, and Portugal have been leading the way, continuously developing the professional remit for pharmacist to become truly patient-centred in their service provision, a well-respected member of any interdisciplinary team and a key contributor to patient safety.[37–40] Historically this development has always been driven by the professional bodies and representative groups within a given country, was met with great enthusiasm by pharmacist themselves and opposed by great scepticism from the medical profession.[35] While all of these themes are reflected in the results presented in this study the difference now seems to be that, compared to 20 years ago, the optimism is no longer connected to a desired development for the profession but is now perceived as an imperative step towards ensuring the future of the traditional high street pharmacy. Since the first postulation of online pharmacies, forty online retailers are registered with the European Medicines Agency.[41] The global revenue of online pharmacies is projected to reach US$22,695.80 m in 2022 with an expected annual growth rate of 11.35% by 2025.[42] Online pharmacies are thought to offer several advantages over "brick and mortar" pharmacies such as 24 h access to medication and advice, privacy and lower prices. This is balanced against a perceived risk of online purchase and associated data security, counterfeit medicines, integrity of e-vendors, privacy, security of financial transactions and lack of regulation.[43] Surveys have shown that 71% of European internet users and 72% of US internet users have run searches for information

about health matters at least once in 2017.[44] According to the Austrian Federal Office for Safety in Health Care there are 107 community pharmacies providing an online service.[45,46] While this development may partly be connected to the concern voiced by participants in this study, there is also a strong sense that there is a need for the introduction of a service-driven remuneration system (fee-for-service model).

The traditional economic model of community pharmacy, that is still prevalent in Austria to date, is based on the practice that the pharmacist prepares the medicines and is paid for the product they dispense to the patient. This is known as a statutory enforced, single payer model as it is predominantly based on product remuneration, either through regressive percentages or mark-ups that are non-cumulative.[47] The explanation of how to use the medicine is assumed to be core of the exchange and not remunerated separately. Although the preparation of medicines still plays an important role in Austrian pharmacies this role has largely been assumed by the pharmaceutical industry across most European countries where pharmacists have principally become a distributor of medicine.[47] A frustration that has clearly been voiced by service developers and providers in this study alike. According to a study published in 2020, 51% (n = 133) of Austrian community pharmacies who have responded to the study survey provide a type of medication review service with only 18% (n = 47) offering additional clinical services. All of which are diverse and dependent on the individual owners' initiative.[48] The program of the last Austrian federal government calls for "*greater consideration of the risks of polypharmacy and establishment of standardized medication management for long-term prescriptions of more than six active substances*".[49] No national approach and remuneration system has been rolled out to date.

Considering the complexity of establishing such a remuneration system, experiences can be drawn from other healthcare systems around the world, which have also had to face the same challenge. An international overview of remuneration models for community pharmacy by the International Pharmaceutical Federation back in 2015 summarises the different remuneration models for professional pharmaceutical services and proposes a strategy for the development of professional pharmaceutical services.[47] This strategy includes the need for a strong and active professional organisation that establishes a sense of urgency, forms a powerful guiding coalition, creates a vision for practice, removes obstacles and institutionalises new approaches. It further includes the need for a comprehensive definition and specification of professional pharmaceutical services to be implemented; an adequate under- and postgraduate education system alongside the implementation of clinical governance and accreditation standards; the need to demonstrate the value of implemented services and cost-effectiveness. Evidence is accumulating for the implementation of a value-added business model as the one most likely to succeed within the pharmacy environment as it allows the identification of specific target markets, planning, evaluation and establishing of training frameworks.[50] A survey by the International Pharmaceutical Federation (FIP) across 48 countries shows that in 28 countries (58%) advanced practice frameworks are available or in development.[51]

One country which has made significant strides in the re-professionalisation of the pharmacy profession since the late 1990s is the UK. The publication of the Foundation and Advanced Practice Framework for Pharmacist, which clearly defined the skills a pharmacist should have at various stages in their career, provided the imperative backbone to the career and legal/political development of the pharmacy profession.[52] Twenty years on, Forsyth (2020) reflects that the development of a clear skills framework is only the first step in the development of clinical skills in the workforce. Creating a strategy, infrastructure and environment including a revised and supported continuous professional development system is imperative to bread healthcare professionals ready to autonomously manage all-cause risk, trust their own judgement and deliver the real – life person centred pharmaceutical care.

6. Strengths and limitations

This study is the first comprehensive interview study using the Framework for Implementation of Services in Pharmacy (FISpH) to better understand the complex implementation factors that influence service developers and service providers views and experiences in community pharmacy. Data saturation was achieved and all quality reporting markers according to COREQ were adhered to. The views of non-responders are not represented and results cannot be generalised. In addition, the stage of clinical service implementation in the community practice of each participant was not taken into consideration further limiting the generalisability and interpretation. As the data collection was completed prior to the COVID pandemic the clinical service provision and legal extensions for pharmacists may well have been accelerated since. The lead interviewer was himself an employee of the Austrian Chamber of Pharmacists which may have impacted the wording of the participants chosen answers.

7. Future work

Research should focus on the development of a national professional skills framework for Austrian pharmacist and the associated educational requirement to improve the confidence of pharmacists in their own clinical skills. This should ideally be done using an interdisciplinary consensus methodology to improve acceptance and success. A comprehensive national study on the views, expectations and infrastructure requirements of expanding individual community businesses into the online merchant sector to counteract the threat posed by large international online pharmacies, could be of interest as will studies exploring the development of remunerated value-added services for specific patient target groups within community pharmacy. While clinical roles in pharmacy are key, they should not come with a heavy loss in terms of changes in the remuneration system as Austrian community pharmacy operates in a private business environment and therefore must be financially sustainable. In addition, research into aligned financial incentives between primary care providers and pharmacies for clinical pharmacy services should also be explored as Austria is one of the few countries in which dispensing physicians share a significant role in the dispensing of prescription medicines.

8. Conclusion

This interview study of community pharmacy service providers and developers has highlighted that the re-professionalisation of Austrian pharmacists is facing the same well documented challenges as many other European healthcare systems. The development of a clinical pharmacy service framework, a powerful guiding regulatory body, education accreditation standard and a well-supported continuous professional development system are considered key to bring about the necessary culture shift and allow pharmacists to maximise their contribution to patient safety.

Author contributions

Anita E. Weidmann AE: Conceptualization, Methodology, Formal analysis, Writing (original draft, review & editing), supervision.

Stefan Deibl: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing (review), project administration.

Magdalena Hoppel: Validation, Formal analysis, Writing (review).

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