



## Original Research

# A qualitative study of the challenges in rearranging community pharmacy service provision during the COVID-19 public health emergency: The prism of social practice theory

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## ABSTRACT

**Objectives:** While healthcare systems struggle to manage the COVID-19 pandemic, community pharmacies have changed the way in which they serve society by ensuring the availability of primary-level medical care. This study aims to examine the rearrangement of service provision at community pharmacies through the prism of social practice theory.

**Study design:** Qualitative in-depth semi-structured interviews.

**Methods:** In total, 21 community pharmacists, 3 hospital pharmacists and 10 experts in Estonia were interviewed. For data analysis, two-dimensional thematic textual analysis was performed according to four types of practices proposed in social practice theory and based on temporal distinction.

**Results:** The findings of this study reveal that, in order to maintain and improve community pharmacy service provision during the pandemic, there have been changes to all aspects of practice elements, including practical understandings, rules and teleological structures. The majority of challenges were experienced because of necessary changes to the habitual ways of providing pharmacy services, indicating resistance to these changes and reinforcing the need to continue existing 'practice-bundles'. Limited access to healthcare services during the COVID-19 pandemic has resulted in community pharmacists becoming the primary (and only) accessible healthcare contact; thus, leading to a shift in awareness about the role of pharmacists.

**Conclusions:** Although large-scale changes may result in the dissolution of practice-bundles and require readiness to adjust current methods of service provision, dissolution is a gradual process. There is an urgent need to support pharmacists in managing the challenges of rearranging service provision, such as immediate organisational changes, lack of information and changing resources.

## 1. Introduction

The rapid spread of COVID-19 in spring 2020 presented completely new challenges for healthcare systems [1]. The importance of community pharmacies in primary healthcare has been highlighted and existing practices of service provision had to rapidly adapt to new circumstances [2]. Several countries made efforts to mobilise pharmacists in order to manage the surge in demand for healthcare services [1,3–5]. The COVID-19 pandemic created a paradoxical situation, where the demand for healthcare services increased, but access and availability diminished at the same time. An additional burden to all accessible healthcare

professionals was related to the overall lack of information and understandings regarding COVID-19 and its consequences. Thus, there was a need to rearrange habitual ways of service provision, including its content and form. Previous research has investigated activities and changes implemented into the pharmacy service during the COVID-19 pandemic [1,3–5]. However, changes to community pharmacy service provision from a wider societal, professional and individual context, together with external and internal reflections, have not been investigated and social practice theory may be useful in this type of analysis.

Social practice theory is applied to explain the link between practice and social situations [6,7], (i.e. practice refers to all the meaningful

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activities that are recognisable to the population in a social environment) [8]. Practices are defined as ‘routinised type of behaviour(s)’ and consist of several interconnected elements [9]. The composition of the practice is complex as practices are not single events but form practice-bundles, emerging slowly and over time based on the repetition and reproduction of certain activities, which continue to undergo short-term or smaller changes [8]. The addition of new arrangements into existing practices evokes small changes, and the accumulation of these small changes slowly evolves into new practices, indicating the gradual nature of a change in order for it to be embedded [8]. In the context of chronically ill patients, it was previously shown that people are eager to continue with their existing lifestyle and habitual activities in the manner they are used to for as long as possible, regardless of the chronic illness diagnosis [10]. Thus, practice theory helps to structure and analyse the world and multidimensional social realities [11], and investigates what people (as carriers of social practices) do and in what ways [9]. A situation such as the global public health COVID-19 emergency impacts the understandings about traditional or typical ways of operating. To be able to explain the influence of these changes, social practice theory provides another perspective in explaining the complexity of these changes and the challenges experienced in implementing routine organisational changes.

The aim of this research was to explore the perceptions of pharmacists and sectoral experts to the changes in the operating principles and quality of community pharmacy services due to the COVID-19 pandemic outbreak in the spring of 2020. This study utilised social practice theory to provide novel insights and understanding of why the changes created challenges.

## 2. Methods

### 2.1. Study context

This study took place in Estonia, where the COVID-19 pandemic-related emergency situation was declared on March 12, 2020 [12]. Many restrictions were quickly implemented, in addition to new rules and regulations pertaining to service provision, including at community

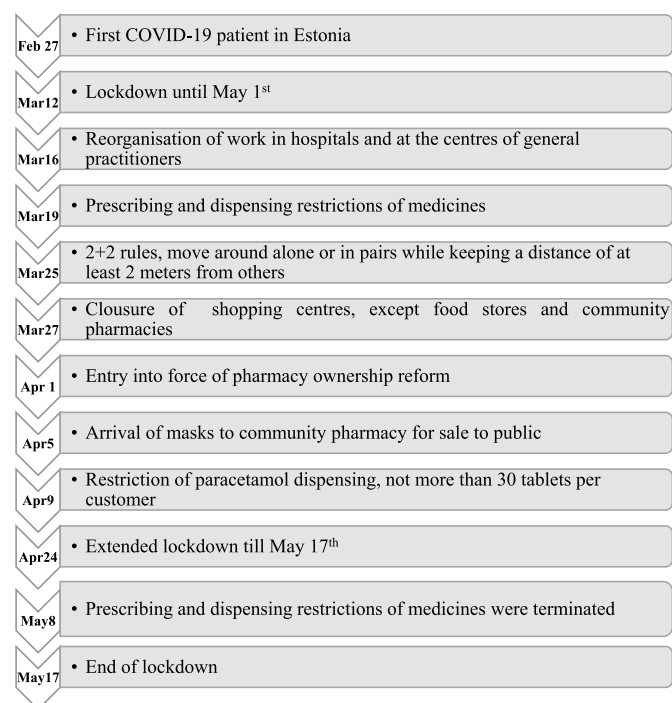


Fig. 1. Timeframe with changes to the healthcare system related to pharmacies during the first wave of the COVID-19 pandemic.

pharmacies (see Fig. 1). Due to the nationwide lockdown, the majority of healthcare services (e.g. primary healthcare and scheduled ambulatory healthcare services) became unavailable to the population or were provided as a remote service by telephone or via other means of telecommunication. Community pharmacies continued daily operations and had face-to-face contact with the population, although with limited capacities and reduced opening hours in some cases [13]. Estonia provides a unique environment to evaluate the implications of a public health crisis since it has developed a well-functioning digital health system operated by governmental institutions and enabling necessary changes in accordance with the public needs. After the first wave of the pandemic in spring 2020, the state was able to avoid strict restrictions and a subsequent lockdown until March 11, 2021. Thus, all study results should be interpreted in the data collection timeframe.

### 2.2. Research methods and data collection

A purposeful sampling technique was used to reach representation throughout different target population groups. The professional backgrounds of participants are shown in Table 1. The final number of participants was sufficient to reach data saturation, which was determined based on the appearance of the same themes and in relation to themes across participants’ answers. As the focus of this research was on different professional experiences and opinions, a qualitative method was selected. Semi-structured interviews allow responses to deviate from the established set of questions and follow interesting thematic topics introduced by participants [14]. Two target-group-based interview schedules were prepared. The need for two target groups was necessary to provide both external and internal views of the changes in daily operation and general management of community pharmacy services. The thematic sections covered the general organisation of pharmacy services, the quality of pharmacy services, and the role of

Table 1  
Participants’ professional occupation.

No.	Participants’ study code	Professional occupation
1	01_A_SL_3	Community pharmacist
2	02_E	Expert (governmental institution)
3	03_E	Expert (pharmacy chain)
4	04_E	Expert (general practitioner)
5	05_A_SL_1	Community pharmacist
6	06_A_SL_1	Community pharmacist
7	07_E	Expert (governmental institution)
8	08_A_SL_1	Community pharmacist
9	09_E	Expert (general practitioner)
10	10_E	Expert (governmental institution)
11	11_E	Expert (pharmacy chain)
12	12_A_VL_3	Community pharmacist
13	13_A_SL_3	Community pharmacist
14	14_A_VL_3	Community pharmacist
15	15_E	Expert (governmental institution)
16	16_HA_SL	Hospital pharmacist
17	17_HA_SL	Hospital pharmacist
18	18_A_SL_1	Community pharmacist
19	19_SL_3	Community pharmacist
20	20_A_MA_3	Community pharmacist
21	21_A_SL_1	Community pharmacist
22	22_A_MA_1	Community pharmacist
23	23_A_MA_2	Community pharmacist
24	24_A_SL_1	Community pharmacist
25	25_A_SL_3	Community pharmacist
26	26_A_SL_1	Community pharmacist
27	27_A_SL_3	Community pharmacist
28	28_A_SL_1	Community pharmacist
29	29_A_VL_1	Community pharmacist
30	30_E	Expert (pharmacy chain)
31	31_HA_VL	Hospital pharmacist
32	32_A_SL_2	Community pharmacist
33	33_E	Expert (association of pharmacists)
34	34_A_VL_3	Community pharmacist

pharmacy prior to and during the COVID-19 pandemic. Pharmacists were additionally asked about their professional roles before and during COVID-19. The interviews lasted between 20 and 110 min, and were performed individually by three different researchers. All interviews were audio-recorded and transcribed verbatim. Each interview was assigned a code, corresponding to an Estonian word and containing the interview's number, identifier by the specialty (pharmacist – A, hospital pharmacist – HA and expert – E), identifier according to the size of the municipality where the pharmacy was located (big city – SL, small city – VL or rural pharmacy – MA) and its type (situated in the shopping centre – 1, in healthcare centre – 2 or located separately – 3).

2.3. Ethical considerations

In Estonia, there is no need to obtain ethical permission for studies where special categories of personal data are not collected or processed. A retrospective confirmation letter has been obtained from the Human Research Ethics Committee of the National Institute for Health Development (NIHD REC). However, despite the lack of official ethical approval, the researchers followed the principles of medical ethics highlighted by Beauchamp and Childress in the 1970s [15], the Declaration of Helsinki [16] and the local Personal Data Protection Act [17], founded upon the principles of the EU legislation of the General Data Protection Regulation (GDPR).

2.4. Textual analysis

For data analysis, a qualitative horizontal cross-case content analysis was applied. The coding schema was based on four types of practices [8] and is shown in Fig. 2. Additionally, temporal dimension (pre-and during COVID-19) was added to the analysis. Prior to the initial analysis, the research team agreed on the interpretations and interconnections between thematic sections and practice-dimension, which was followed by the repeated reading of interview texts and coding. After initial analysis, the research team agreed on the results of coding, which was followed by secondary reading of the texts as well as double-checking of the codes and results.

3. Results

The results of a qualitative content analysis based on the four types of practices are summarised in Table 2.

3.1. Type 1: Practical understandings

The main emphasis in the practical understanding of the community pharmacy work was related to counselling as a specific task, which was considered to have changed due to COVID-19. The examples indicate that people without a medical background needed professional recommendations regarding products that they did not habitually buy or use. There was an increased need for more general counselling and pharmacies were seen as trustworthy service providers to manage the information needs.

Regarding the structure of counselling and the time taken to provide this service, some participants noted that counselling time during COVID-19 was shortened and focused only on the main aspects concerning the use of medications. Conversely, other participants reported that because fewer customers visited the pharmacy, counselling was longer and more thorough than in the pre-COVID-19 pandemic time. The main reasons for the perception of increased time and quality of the counselling service were associated with the smaller number of people visiting community pharmacies, which was more characteristic of the latter period of the first wave of the COVID-19 pandemic when the initial panic over the availability of medications had eased.

In terms of the process of counselling, participants stated that general restrictions and social distancing rules also influenced the counselling activity in an opposing ways. The improvement of person-centred care and enhancement of the counselling service accompanied by the restrictions was outlined a positive aspect. However, the physical barrier (e.g. protective glass) was perceived to decrease the quality of the counselling service and patient-centred focus. The challenges faced by pharmacists were related to the need to learn a considerable amount of information to become confident in counselling in areas where people sought advice, which thus also became an additional burden to their daily operations.

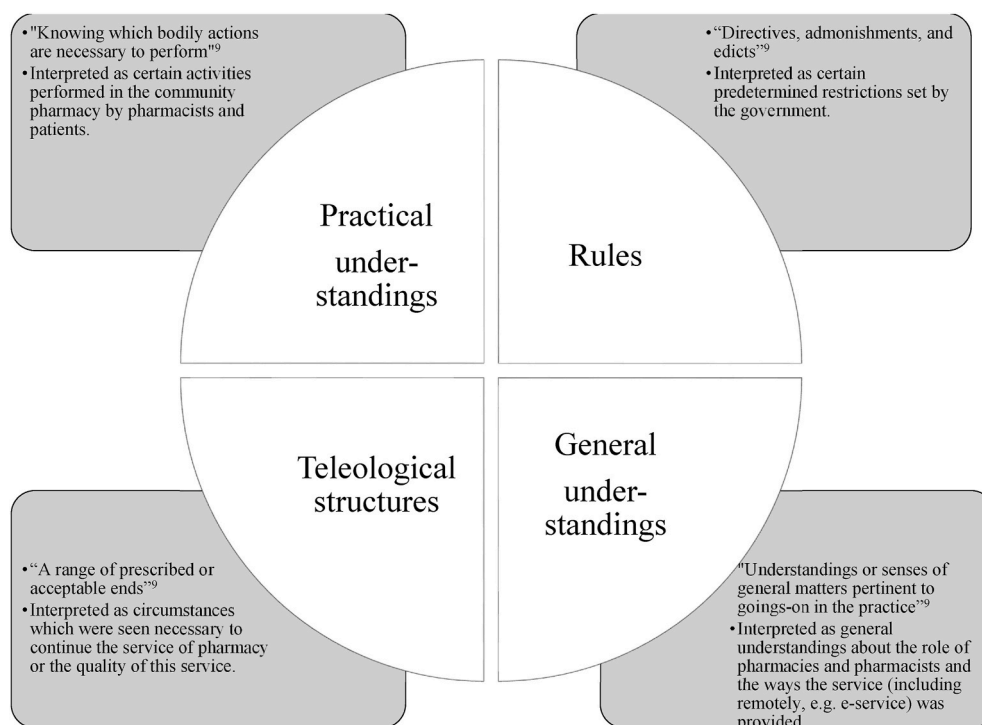


Fig. 2. Coding categories according to Schatzki[9] and in terms of the analysis of present research.

**Table 2**  
Results of qualitative content analysis.

Type of behavior	Sub-codes	Representative quotes illustrating the situation prior COVID-19	Representative quotes illustrating the situation during COVID-19
<b>Practical understandings</b>	The nature of counselling	<i>Counselling was the main task (05_A_SL_1) Counselling becomes more and more important compared to pure "reach over the counter" (32_A_SL_2) Pharmacy is not such a private place/ ... /to discuss your problems (19_A_SL_3)</i>	<i>Advice given to patients remained at the same quality level, but there were more questions asked or topics covered that did not directly concern pharmaceuticals (25_A_SL_3) In such a counselling process, we had to communicate this information very compactly and people came with very specific wishes (19_A_SL_3) When talking about counselling, then I think we have even had more time for that/ ... /therefore, I believe that the quality of the service has even increased (13_A_SL_2) In fact, there was a lot of things that did not require counselling/ ... /all kinds of disinfectants and stuff (08_A_SL_1)</i>
	The structure and content of counselling		<i>People had questions like if I go to a grocery store to buy an unpacked cucumber or tomato, then how I'm going to disinfect it, in general, how to clean up surfaces (21_A_SL_1) People did not climb on your back/ ... /no one comes and breathes in your neck and personal counselling is possible (28_A_SL_1)</i>
	Counselling outside the area of healthcare	<i>The biggest is the role as a trustee (08_A_SL_1)</i>	<i>We were obligated to keep track of when a person purchases certain medicine/ ... /there were such patients that had these psychotropic drugs and had already received the drugs/ ... /And they are angry with us and then, of course, the other patients next to them are very fair and immediately advise that there are other pharmacies in the city and there are much better pharmacists (28_A_SL_1) Doctors could not prescribe repeat prescriptions (for chronically ill patients) and could disable the purchase of more than two months reserve/ ... /those limitations, those were technical limitations, so that it was not even possible to issue more (07_E) When you have minister's directive on the evening of March 19<sup>th</sup>, then/ ... /it was really complicated to work on the morning of March 20<sup>th</sup> (01_A_SL_3)</i>
<b>Rules</b>	The organisation of the counselling	<i>Pharmacist is an important part of patient journey and I think pharmacists could be involved better than it has been done (07_E)</i>	<i>It was a fantastic idea by the State Agency of Medicines to allow responsible persons of pharmacies (pharmacy managers) to work in another pharmacy./ ... /During the emergency situation this legal change was made, and a responsible person was able to work in other pharmacies (27_A_SL_3)</i>
	Governmental (technical) regulations regarding dispensing of medicines (including prescription restrictions)	<i>There are certain criteria, whether the state has set those, and what kind of products you must have available and to what extent, especially in terms of medicines (30_E)</i>	<i>Apparently, personal protective equipment and plexiglass and all that do not disappear from the pharmacy in the meantime and maybe they will stay there. (10_E) We wear masks and have protective glasses/ ... /and we use disinfectants (01_A_SL_3) Some stock (of personal protective equipment) is always available in the pharmacy and when there was a deficit of it, we used this stock for our own needs (32_A_SL_2) Everybody wanted to buy masks, gloves, disinfectants all of a sudden./ ... /And when these were finally available, the supply had increased/ ... /even higher, and people were standing in line behind pharmacies' doors. And these products were sold at enormous prices as well/ ... /it probably created a lot of questions in the society in general, it seemed unethical maybe that this proportion of profit was added on top of the price (02_E).</i>
<b>Teleological structures</b>	Governmental regulations regarding working arrangements	<i>Usually when I have a low number of customers, I cannot contribute to supporting another pharmacy with the lack of workforce. (27_A_SL_3)</i>	<i>During the first days of the pandemic, a considerable part of pharmacists, not half of them but a double-digit number in percentage, if I remember correctly, took immediately sick leave, which meant that in a situation with a lack of pharmacists anyhow, the deficit deepened even further, which, in turn, meant that we had to find possibilities to rearrange the work in a way that would save pharmacies from closure. (03_E) (Due to the excess of workforce) we rearranged the work of our pharmacies and people went to work in other pharmacies (11_E)</i>
	Preventive measures in terms of physical environment	<i>We took our own initiative and started to wear gloves immediately./ ... /I would say it was good that we started to do all these things before something (rule) comes up that says you must do it (05_A_SL_1)</i>	<i>I have been working since summer (2019) and there is no time period when any of the important medicines would not be in out-of-stock situation. Some of them have become available during corona time and some have disappeared, so, I would not say that the situation would have been drastically changed (due to COVID-19). (08_A_SL_1)</i>
	Lack of resources		
	Lack and excess of workforce	<i>The part in bold in the excerpt in right indicates usual situation</i>	
	Supply of medications	<i>Under normal situation, all kinds of supply issues are very much on the agenda, I think we spend a lot of time finding medicines for people, from where to order, which pharmacy has got it/ ... / (08_A_SL_1)</i>	

(continued on next page)

Table 2 (continued)

Type of behavior	Sub-codes	Representative quotes illustrating the situation prior COVID-19	Representative quotes illustrating the situation during COVID-19
<b>General understanding</b>	General role of pharmacies and pharmacists		<i>During the pandemic, the role of pharmacists was so special, people had no other place to turn to/ ... /not only in regard of their medicines (28_A_SL_1)</i>
	The role of pharmacists in terms of primary healthcare		<i>I think that our role was in some sense even more important than the role of general practitioners. General practitioners were sitting behind closed doors and received people only according to pre-registration (12_A_VL_3)</i>
	Contribution as frontline workers		<i>We had/ ... /200-300 people every day and we had to help all of them regardless of the pandemic and they (GPs) were not able to see even 10-15 people (23_A_MA_2)</i> <i>Question came from our pharmacists – if general practitioners may close their centers and provide remote consultations, then why do we have to be here and take the hit in this situation where nobody notices that we are doing this. (03_E)</i>

### 3.2. Type 2: Rules

The themes were related to governmental restrictions and measures to ensure access to pharmacy services, including access to prescriptions and over-the-counter medicines, and to provide a safe and private environment for service provision for both pharmacists and customers. According to the traditional perception, the rules are something fixed by legislation and in terms of pharmacy service, the impact of legislation in healthcare is stricter than regulations applied in other areas.

However, as seen in Table 2, governmental institutions were relatively flexible and implemented technical solutions that enabled the adoption of restrictions to the daily operating of community pharmacies. Despite this, one of the challenges in the daily context was related to the speed of the implementation, where pharmacists had to change habitual ways of operating (e.g. what medications and in what quantity, according to which rule to dispense) as well as handling customers' negative reactions.

Compared with the pre-COVID-19 pandemic time, the requirements for the operation of community pharmacies and dispensing of medications were changed to ensure the availability of medicines. However, it is not obvious whether rule-related changes are temporary or permanent.

### 3.3. Type 3: Teleological structures

Teleological structures emerged as themes related to the lack or excess of the workforce, the lack of resources (e.g. personal protective equipment) and problems with medication supply. Excess workforce was regarded as a new phenomenon; however, rearrangements of habitual practices secured optimisation of the workforce, sustainability of service provision and employment for pharmacists.

Medicine shortages have been present in Estonia for some years and varied between pharmaceutical companies and products. During the COVID-19 pandemic, the selection of medications having supply issues changed, and this situation was reported by most respondents, regardless of their role in the pharmaceutical sector. The deficiency of structural preparedness for such types of public (health) emergencies might lead to increased societal issues, including increased social and health inequalities.

While the majority of service providers rearranged their regular practice in order to enable the continuation of service provision as a regular practice, there were also those who continued with the existing practice ("There were no isolated or restricted areas in our pharmacy" [08\_A\_SL\_1]), which confirms that the dissolution of the practice requires the impact of several factors and strong environmental support.

Pharmacies faced a number of challenges during the first wave of the pandemic to be able to carry out their prescribed and required service provision. However, the challenges were not only pharmacy-based and

therefore should also be highlighted to health authorities to enable preparation for future emergencies.

### 3.4. Type 4: General understandings

General understandings were considered to be the roles of pharmacies, which had to alter during the pandemic in terms of different target groups and the society in general, and the ways in which they were providing services (including remotely, i.e., e-service).

The importance of pharmacists and pharmacies during the COVID-19 pandemic was highlighted by the continued physical availability of their services as a part of the healthcare system when other healthcare services were inaccessible or only available remotely. As a result, the work of pharmacists was perceived as a frontline healthcare activity, while the rest of the healthcare system was not fully operating. Participants expressed resentment towards general practitioners (GPs) and the additional pressure related to the operation of their own services. Pharmacists experienced various increased and intensified burdens in daily operations.

In addition, the fact that other healthcare services were provided remotely raised questions and caused some resistance among pharmacists. When comparing themselves and their roles to other healthcare professionals during the pandemic, pharmacists felt they had been placed into an unfair situation for which they were inadequately prepared. COVID-19 created these new meanings and outputs to habitual practices. However, respondents also emphasised positive emotional situations, revealing that the public understood the importance of pharmacies and pharmacists, such as "*there were also quite a lot of cordial moments, people wished that we would cope and manage and stay healthy, what would happen to us if you got ill?*" (12\_A\_VL\_3).

## 4. Discussion

The present research used social practice theory, which, in the context of community pharmacy practice, has not been widely used. The aim of using this approach was to explain the nature of changes and to indicate the multidimensionality of those changes. As the composition, development and dissolution of the practices are complex processes that evolve over time [8], the examination of any of the changes is not simple and linear. Although it might seem relatively easy to implement changes, which, in terms of emergent public health situations, were undoubtedly necessary (and also perceived as such), the adoption of these changes was perceived as stressful and challenging.

In the context of the present research that investigated changes to daily operation of community pharmacies during the first wave of the COVID-19 pandemic, the approach had solid links with social practice theory: various physical and psychological responses emerged in dispensing medication and counselling while maintaining social

distance; 'things' and their use materialised as masks and gloves were applied for protection; background knowledge was detectable in the form of perceptions; know-how was represented in professional competencies about medications; emotional states were expressed as fears regarding the virus and the sustainability of the service; and motivational knowledge was adopted from the recognition received from the society in general and from the engagement of the state. Thus, findings of the current study reveal different ways in which the daily routines of service provision at community pharmacies were changed and outline the challenges experienced during the first wave of the COVID-19 pandemic.

The analysis confirms the interconnectedness of different practices (i.e. the formed practice-bundles) and demonstrates how a change in one practice also evoked a change in other types of practice. Examples indicated that changes in rules (e.g. physical barriers, prescription restrictions) resulted in changes in practical understandings of how to perform professional actions (e.g. counselling or patient/customer care). Therefore, the results confirm the earlier findings regarding the social practice theory approach, where the role of a practice-bundle and the influence on its persistence was shown [10] (i.e. in order to maintain service provision, a set of other activities needed to be changed). Previous research on chronically ill individuals has shown that where massive changes are required, people prefer to continue with the current situation and slowly adjust their lifestyle with smaller and single activities when it is impossible to continue with old practices [10]. The analysis of community pharmacy services is different in the sense that the requirement for a change also had legislative and regulative power and the only way to proceed without the required changes would have been the closure of the pharmacy and not the adoption of changes 'at your own pace'. Thus, the intensity and speed of required changes might result in struggles to adapt and increased levels of stress. In addition, a study from Serbia outlined the increased complexity of the provision of community pharmacy service during COVID-19 pandemic, resulting in increased stress levels [18].

While the Serbian study highlighted the need for more robust healthcare systems [18], the social practice theory approach enables explanation of the struggles and challenges, which are outlined in the situation itself. The global pandemic and the resulting governmental restrictions have very strong normative power (i.e. under a public health emergency, the rules are not negotiable, especially for healthcare service providers). Although the majority of pharmacies implemented the required changes, there were some who refused to implement changes based on subjectively perceived analysis of the situation. When new operational ways have to be implemented quickly, they are inherently stressful and often short-term in the nature (i.e. they are changed after the end of restrictions or the reduction of perceived threat); however, the dissolution and replacement of one practice with another is not a quick or sudden process, and the implementation of the practice might be delayed due to the lack of need or readiness to implement the change [8,11]. Therefore, as shown also by Lynch and O'Leary, changes that are seen as efficient and necessary during a COVID-19 pandemic should become permanent [19]. In addition, to encourage better utilisation of the professional competencies of pharmacists and the potential of pharmacies in terms of availability of primary healthcare services, the long-term implementation of adopted changes might support pharmacists' readiness, willingness and capabilities to manage sudden crises situations, which entail a chain of changes.

From a narrower perspective, the changes in service provision might involve the structural rearrangement of pharmacy services. While there was increased potential for more private counselling and communication due to the reduced number of customers, the presence of protective glass might have decreased the efficiency of direct communication or in some cases, in terms of contact with disabled people, even impeded the contact. An earlier study among pharmacists in The Netherlands highlighted that due to the placement of plastic screens, pharmaceutical care was more distant and 60.6% of respondents reported that they barely

received questions from patients about medications [20]. The use of different kinds of protective equipment (including physical barriers) is still in place, despite the relaxation of restrictions, and it is seen as a change that could remain in the future. In terms of counselling, the use of protective equipment and barriers might hinder the content and quality of the service in the long term, resulting in a more general information exchange rather than substantial counselling and this influences different aspects of patient-centred care, including medication safety (e.g. reducing errors) and experience (e.g. privacy and comfort) [21].

An important point emphasised by participants was related to the lack of necessary resources, including workforce and accessibility of products. The pandemic has impacted many supply chains causing out-of-stock situations [22], which is a worldwide problem. According to the medicines shortage survey undertaken by the Pharmaceutical Group of the European Union, in 2020 the medicine shortages situation got worse in 65% of the responding countries compared with 2019, and in most countries over 200 medicines were listed as in short supply [23]. During COVID-19, country-based restrictions were set on prescription medicines and paracetamol [24] as well as the rearrangements made by pharmacy chains in regard to the workforce, which were put in place to support the sustainability of community pharmacy service provision. However, the issues of supply chains require at least pan-European cooperation, while the state should continue to work on the aspects pertaining to legislation that would ensure more flexible rules for workforce rearrangements of community pharmacies (at least in emergent crises situations).

Some limitations of the current study should be acknowledged. Using face-to-face interviews as a research method is a social occasion and the revealed information might be dependent on a particular interviewer. Thus, the fact that three different researchers interviewed the participants might have unintentionally influenced the information that the participants disclosed. Additionally, due to the emergency situation, it was only possible to conduct interviews electronically, which decreases the ability to consider non-verbal aspects of participants' answers in data interpretation. However, the authors believe that despite these limitations, the general value of the findings and the new knowledge remains valid, and the research provides useful insights into the issue.

Practice-bundles are persistent and one of the reasons for dissolving these are large-scale changes [8]; the global COVID-19 pandemic is unquestionably such a change. Therefore, there was a readiness to make changes to the habitual ways to maintain the operation of community pharmacies and the quality provision of services. At the same time, dissolution is a process of gradual rather than sudden changes [8], thus, the challenge is to support pharmacists in managing these changes, such as immediate organisational rearrangements, lack of information and lack of resources. In order to understand the factors contributing to persistent changes in practical arrangements and in the organisation of community pharmacy services and its provision, follow-up research is required.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhip.2021.100212>.

## Ethical approval

Please refer to the ‘Ethical considerations’ section of the main text. The authors confirm that all participant information and identifiers have been removed or disguised, so that the persons described are not identifiable and cannot be identified through the details of the text.

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