Research in Social and Administrative Pharmacy 17 (2021) 606–612

Contents lists available at ScienceDirect

Research in Social and Administrative Pharmacy

journal homepage: www.elsevier.com/locate/rsap

How does the general public balance convenience and cognitive pharmaceutical services in community pharmacy practice

Jeroen M. van de Pol [a,*], Liset van Dijk [b,c], Ellen S. Koster [a], Judith de Jong [b,d], Marcel L. Bouvy [e,a]

[a] Division of Pharmacoepidemiology and Clinical Pharmacology, Utrecht Institute for Pharmaceutical Sciences, Utrecht University, the Netherlands
[b] Nivel, Netherlands Institute for Health Services Research, Utrecht, the Netherlands
[c] University of Groningen, Dept. of PharmacoTherapy, Epidemiology & -Economics (PTEE), Groningen Research Institute of Pharmacy, Faculty of Mathematics and Natural Sciences, University of Groningen, Groningen, the Netherlands
[d] Maastricht University, Dept. of Health Services Research, Faculty of Health, Medicine and Life Sciences, the Netherlands
[e] Academic Community Pharmacy Stevenshof, Leiden, the Netherlands

A B S T R A C T

Background: Community pharmacy is shifting its focus from traditional, product-focused roles to the provision of cognitive pharmaceutical services (CPS). Previous research has indicated that community pharmacists predominantly want to devote their capacity to CPS. Ideally, services provided also address users' needs. The general public's preferences regarding the services provided by community pharmacists are currently less understood.
Aim: This study investigates the general public's preferences and perceived importance of CPS versus convenience in community pharmacy practice.
Method: An online survey of 1.500 members of the Dutch Health Care Consumer Panel containing questions regarding preferences for CPS and convenience was distributed. Descriptive statistics and linear regression analysis were performed to investigate the relationship between preferences and participant characteristics.
Results: 516 panel members completed all questions regarding preferences and importance of the availability of services. The majority preferred convenience (68.2%) and a smaller proportion preferred CPS (27.7%). However, participants considered it important from a societal viewpoint that CPS is provided (45.0%). Participants who preferred CPS over convenience were generally older ($p < 0.001$) and used more medicines ($p < 0.001$).
Conclusion: Convenience of community pharmacy services is most preferred by the general public. However, CPS is perceived as important, especially for elderly who use more medicines. Elderly patients who use more medicines more often rate CPS as more important than convenience. These findings suggest that community pharmacists should ensure that pharmacy logistics are organized efficiently before focusing on the provision of CPS.

Introduction

There is a global trend to shift the role of the community pharmacist from a product-focus, such as compounding and dispensing medicines, to a more patient-focus, such as patient education and counselling (also known as cognitive pharmaceutical services (CPS)).

This anticipated shift in focus is driven by an increasing demand for healthcare due to the ageing population and complexity of medication.[1] In daily practice however the uptake of this transition is very slow. The perception of patients about the services provided by community pharmacies may play a role in this slow uptake. Therefore it is important to study these perceptions as they could provide the profession additional information for the development of the community pharmacy profession as a whole. The Dutch healthcare system is (like other countries) currently facing shortages in the number of healthcare professionals,[2,3] which might require reallocation of tasks. Pharmacists can take more responsibility for patients' medication management. Thus, there is growing awareness among policy makers that community pharmacists can play a valuable role in the healthcare system by providing CPS,[4] rather than limiting their role to solely dispensing medicines. Community pharmacists in The Netherlands are currently offering several CPS such as pharmacist-led clinical medication review (CMR) or medication adherence counselling.

However, the community pharmacist is still an underused healthcare provider for counselling, despite being the most frequently visited healthcare provider with extensive expertise regarding medication.[5,6] Furthermore, the community pharmacist is often the last healthcare provider a patient sees before returning home with filled prescriptions. Especially regarding repeat prescriptions, that are often repeated without a doctors' visit. This gives community pharmacists the

* Corresponding author.
E-mail addresses: j.m.vandepol@uu.nl (J.M. van de Pol), l.vandijk@nivel.nl (L. van Dijk), e.koster@uu.nl (E.S. Koster), j.dejong@nivel.nl (J. de Jong), m.l.bouvy@uu.nl (M.L. Bouvy).

https://doi.org/10.1016/j.sapharm.2020.05.014
Received 1 November 2019; Received in revised form 18 April 2020; Accepted 13 May 2020
Available online 28 May 2020

opportunity, more than other healthcare professionals, to provide medication counselling and evaluate the effectiveness and safety of drug therapy on a regular basis. Any drug related problem identified by the pharmacist should subsequently be communicated to other involved healthcare professionals. In this way, community pharmacists can play a pivotal role within an integrated primary healthcare team. Many international studies have found that pharmacy services improved generic outcomes, such as medication adherence and self-management, and disease specific outcomes, such as HbA1c, blood pressure, LDL, and BMI.[7–14] Still, patients' utilization of these services lags behind.[15–17]

Previous research indicates that community pharmacists want to spend more time on the provision of CPS.[18,19] Furthermore, patients have a positive attitude toward CPS provided by the community pharmacist if they experienced these services first-hand.[20]

In addition to CPS, community pharmacies also offer convenience such as extended opening hours and short waiting times. Currently, there is limited knowledge about how the general public balances CPS versus convenience. However, these preferences are expected to be influenced by the way the general public perceives the community pharmacist. This perception can impact the future development of a more clinical role of community pharmacists and should be considered when further developing the profession as a whole.[21]

Therefore, the aim of this study was to identify how the general public balances preferences regarding CPS and convenience provided by the community pharmacist. In addition, we aimed to assess the public's perceived importance of the availability of these services.

Methods

Setting

The Dutch Healthcare Consumer Panel facilitated by Nivel (Netherlands institute for health services research) was used for data collection.[22] This panel measures knowledge, experiences, and expectations regarding the Dutch healthcare system from the view of the general Dutch population.

In 2018, the Consumer Panel consisted of approximately 12.000 people aged 18 years and older. The panel is formed by using address files from the general population and general practices of the Netherlands and inviting to partake in the panel. Panel members are not recruited via community pharmacies. The panel is renewed on a regular basis to prevent members developing a certain knowledge of the healthcare system, thereby no longer reflecting the knowledge of the general public and to prevent questionnaire fatigue. People cannot sign up for the panel on their own initiative but must be invited by Nivel. New potential members are purposively invited based on demographic characteristics, such as age and gender, aiming to create a panel representative of the Dutch general population.

For each study, approximately 1.500 members of the Consumer Panel are invited to participate. Individual members are invited to participate in research approximately three to four times a year. Research is mostly conducted via (online) questionnaires, on which members can decide whether to fill out the complete questionnaire, only answer questions regarding a certain topic, or not participate at all. Resigning from the Consumer Panel can be done at any time. Privacy of panel members is guaranteed, since people who analyse the data do not have access to the personal information of the panel members. The panel is partly financed by the Dutch Ministry of Health.[22]

Population and questionnaire design

A random sample of 1.500 members from the Dutch Healthcare Consumer Panel who indicated a preference for an online questionnaire was invited to complete an online questionnaire on services provided in community pharmacies in the Netherlands. The questionnaire was developed based on a convenience sample of 18 studies identified in international literature (see supplementary material). After the initial questionnaire was sent, panel members received two electronic reminders.

Main outcomes

Preferences regarding pharmacy services

Participants had to rate their preferences for nine combinations of three factors related to convenience and three CPS-related services (Table 1). Participants could rate their preferences on a 4-point Likert scale (2, 1, 1, 2). A score of 2 indicated a high preference for a specific service over the other, whereas a score of 1 indicated a slight preference.

For each individual participant, the cumulative score for convenience was subtracted from the cumulative score for CPS. This step created a final score per participant ranging from +18 to −18 in which positive scores reflected a preference for CPS and negative scores reflected a preference for convenience.

Importance of availability of pharmacy services

Participants rated the importance from a societal viewpoint of availability of 12 pharmacy services on a 4-point Likert scale (1, 2, 3, 4). Four services were convenience-related and eight services were CPS-related (Table 1). Per participant, average scores were obtained for both convenience and CPS, with 4 the most important and 1 the least important. The average score per participant for convenience-related activities were subtracted from the average score for CPS, giving a score ranging from −3, deeming convenience more important, to +3, deeming CPS more important.

Covariates

Demographics such as age, gender, educational level, ethnicity, number of chronic diseases, and medicines in use were collected and included as covariates in the analysis. Level of education ranked low, middle, or high. Low is regarded as no education, primary school, or

Table 1
Cognitive pharmaceutical services and convenience used to determin preferences and importance regarding availability.

	CPS	Convenience
Determining preferences	Provision of extensive information regarding medication	Community pharmacy being close by
	Possibility for a private consultation with the pharmacist	Short waiting times
	Special services for patients with chronic diseases	Extended opening hours
Determining importance of availability	Advice regarding medication	A reminder to repeat a prescription
	Possibility for a private consultation to discuss the medication	A dispensing robot allowing for 24/7 collection of medication
	Organizing walk-in consultation hours to speak with a pharmacist	Delivering medication at home
	Possibility of offering individualized drug dispensing systems (e.g. multidose dispensing)	Providing a separate consultation room
	Pharmacy employees that have specific knowledge regarding certain chronic diseases	
	Special services for patients with chronic diseases (e.g. measuring blood pressure)	
	A pharmacy employee to visit at home after a hospital discharge	
	A yearly clinical medication review led by the pharmacist	

prevocational education. Middle is considered secondary or vocational education. High is considered professional higher education or university. Ethnicity was defined as people with a migratory background having at least one parent with another nationality. In addition, respondents were questioned on their opinion regarding the community pharmacist as a healthcare provider. The opinion of the general public on the pharmacist was also included as covariate. Respondents views on the pharmacist as a healthcare provider were scored on a Likert scale: fully agree (+2), agree (+1), disagree (−1), or fully disagree (−2).

Statistical analysis

First, descriptive analysis and visualization of the data was performed using Microsoft Excel 2016. Linear regression, using SPSS 23.0 to calculate regression coefficients and p-values, was used to analyse the effect of the covariates (both continuous and discrete independent variables) on the preferences and importance for CPS or convenience (continuous dependent variable). Univariate analysis was performed for every covariate, and when p-values were under 0.1, the specific covariate was also added in a multivariate model. A chi-squared test was performed to ascertain the correlation between what participants ranked as important and their preferences.

Ethics and confidentiality

Data were analysed anonymously and processed according to the privacy policy of the Dutch Healthcare Consumer Panel, which complies with the General Data Protection Regulation. According to Dutch legislation, there is no legal requirement to obtain informed consent nor approval by a medical ethics committee for conducting research through the panel.

Results

Study population

A total of 799 panel members started the online questionnaire (response rate of 53%). Of these respondents, 516 participants provided full data on both preferences and importance (Fig. 1).

Most participants had a middle or high educational level; the majority had one or more chronic diseases and one or more medicines in use (69.3% and 73.6%, respectively) (Table 2). The 516 participants with complete data on preference and importance had similar background characteristics to the 799 participants that completed part of the online questionnaire.

Preferences regarding services from the community pharmacy

Fig. 2 presents the results for preferences with respect to services provided by the community pharmacy.

The results indicate that most participants preferred convenience (68.2%) over CPS (27.7%). A smaller proportion of respondents (4.1%) did not have a preference for CPS or convenience.

Importance of availability of services from the community pharmacy

Fig. 3 illustrates how important CPS and convenience were deemed by the general public. Most respondents rated the availability of CPS services by community pharmacies as more important than convenience (45.0% versus 36.2%). Some respondents (18.8%) rated the importance of availability of CPS and convenience similarly.

Univariate and multivariate linear regression analyses regarding potential covariates associated with the preference for CPS are displayed in Table 3. The results show a statistically significant effect within the multivariate analysis of participants' age, gender, educational level and view of the pharmacist as a healthcare provider. With increasing age, preference for CPS increased, and female participants preferred CPS more than male participants. A high educational level is associated with a decreased preference for CPS. Viewing the pharmacist as a healthcare provider is associated with a preference for CPS.

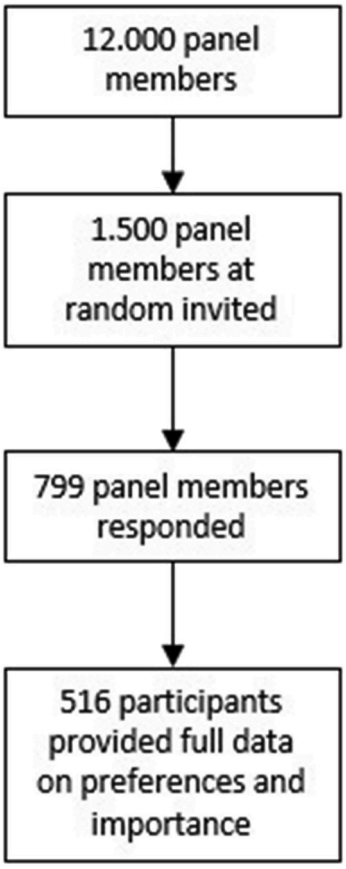

Fig. 1. Data flowchart.

Table 2
Background characteristics.

Background characteristic study population (N = 516)	% (n/N)
Gender	49.6 (256)
• Male	
Age (mean ± SD)	51.1 ± 13.7
Educational level:	7.7 (39)
• Low	45.7 (231)
• Middle	46.6 (236)
• High	
Ethnicity:	90.4 (461)
• Dutch	9.6 (49)
• Migratory background	
Number of chronic diseases:	30.7 (156)
• 0	28.3 (144)
• 1	21.4 (109)
• 2	10.6 (54)
• 3	9.0 (46)
• More than 3	
Number of medicines in use:	26.4 (136)
• 0	27.4 (141)
• 1	16.1 (83)
• 2	13.6 (70)
• 3	16.5 (85)
• More than 3	
Pharmacist as a healthcare provider	17.9 (87)
• Fully agree	55.3 (268)
• Agree	23.1 (112)
• Disagree	3.7 (18)
• Fully disagree	

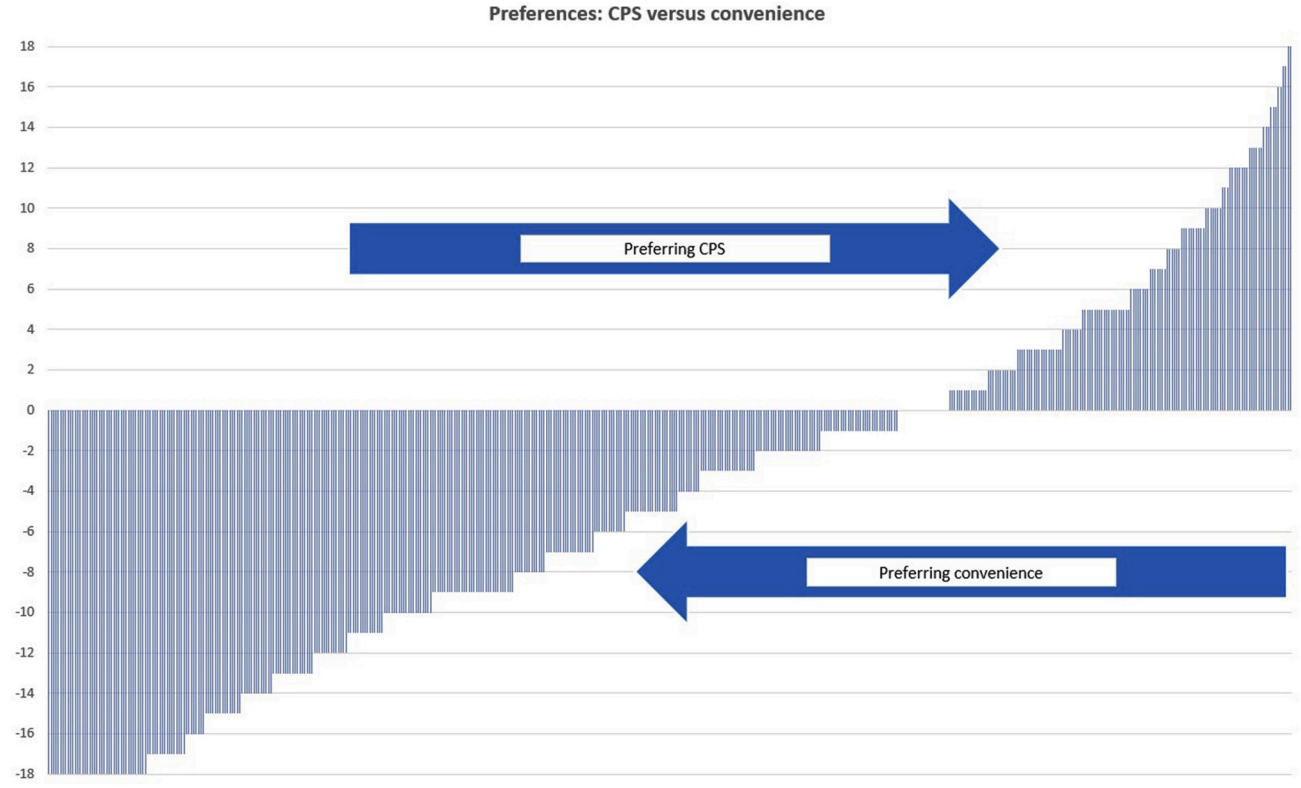

Fig. 2. Preferences of individual participants regarding CPS and convenience provided by community pharmacies.

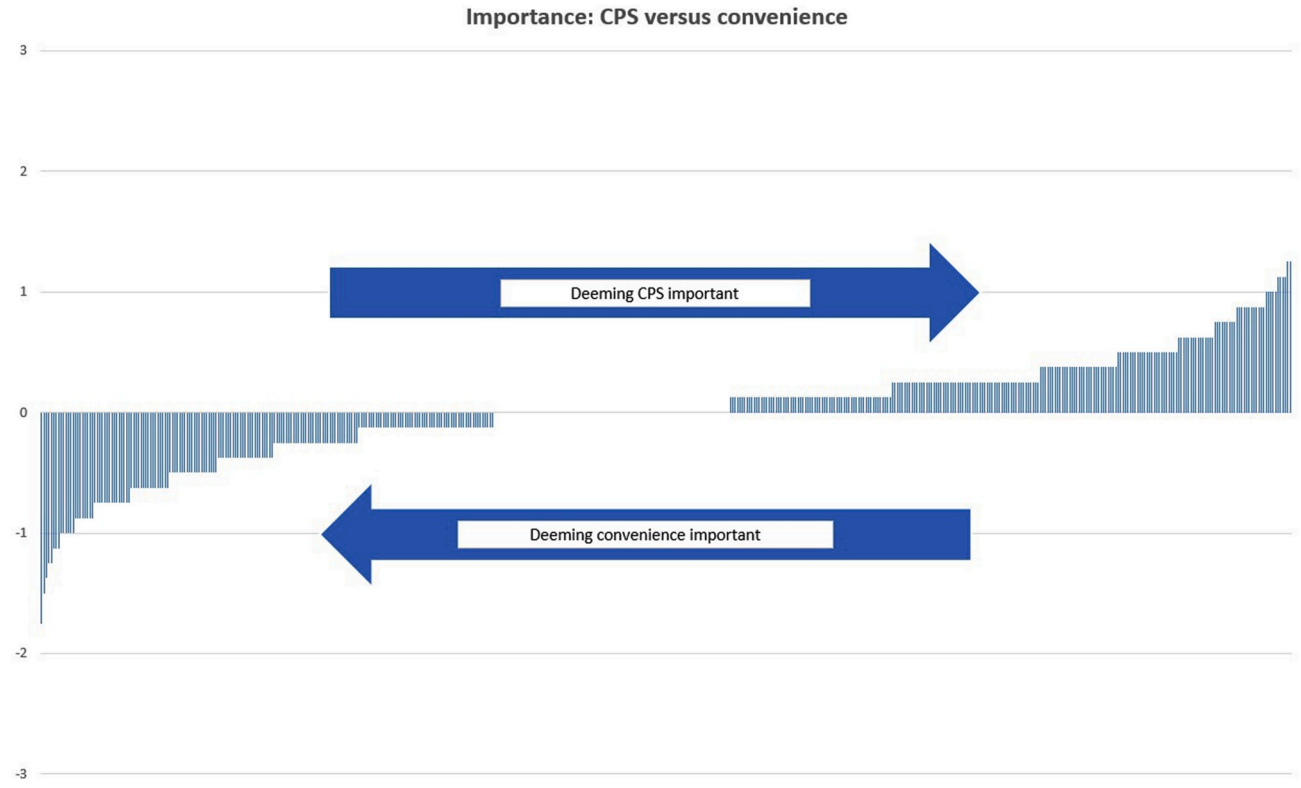

Fig. 3. The perceived importance of the availability of CPS and convenience by individual participants.

Table 3 also provides the results of the univariate and multivariate linear regression analyses regarding the importance of CPS availability. The results show a statistically significant effect within the multivariate analysis of participants' age, educational level, number of chronic diseases, and view of the pharmacist as a healthcare provider. With increasing age and number of chronic diseases, the availability of CPS

Table 3
Results from linear regression regarding preferences and importance for CPS.

	Preferences				Importance			
	Univariate linear regression		Multivariate linear regression[a]		Univariate linear regression		Multivariate linear regression[a]	
	Regression coefficient	Significance (p-value)	Regression coefficient	Significance (p-value)	Regression coefficient	Significance (p-value)	Regression coefficient	Significance (p-value)
Age in years	0.096	<0.001	0.088	<0.001	0.002	0.011	0.003	0.030
Gender	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
• Male	1.302	0.018	1.350	0.018	−0.030	0.304	N.a.	N.a.
• Female								
Educational level	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
• Low	−0.503	0.581	N.a.	N.a.	−0,096	0.058	−0.104	0.089
• Middle	−4.577	<0.001	−3.999	<0.001	−0.128	0.012	−0.139	0.026
• High								
Ethnicity	Ref	Ref	N.a.	N.a.	Ref	Ref	Ref	Ref
• Dutch	−0.042	0.965	N.a.	N.a.	−0.134	0.009	−0.096	0.122
• Migratory background								
Number of chronic diseases[b]	0.440	0.021	N.a.	N.a.	−0.024	0.016	−0.047	<0.001
Number of medicines in use[b]	0.646	<0.001	0.143	0.364	−0.016	0.054	N.a.	N.a.
Perceiving the pharmacist as a healthcare provider	1.147	<0.001	1.025	<0.001	0.055	<0.001	0.055	<0.001

[a] Covariates with p-values < 0.1 in the univariate analysis were also added in the multivariate analysis.
[b] Due to high correlation between the number of chronic diseases and number of medicines in use, only the covariate with lowest p-value in univariate analysis was included in the multivariate analysis.

was deemed more important. A high educational level is associated with a decrease in the perceived importance of CPS availability. Viewing the pharmacist as a healthcare provider increased the importance of CPS availability.

Participants who preferred CPS over convenience also deemed the availability of CPS more important than the availability of convenience (chi-square; $p < 0.001$). One of four participants who preferred convenience over CPS thought the availability of CPS was important (data not shown).

Discussion

This study suggests that the majority of participants ('the general public') prefers convenience over CPS from their community pharmacist (or community pharmacy, as some services may also be provided by pharmacy technicians). However, most participants rated the availability of CPS as more important than convenience. Participants who highly valued CPS were mostly older ($p < 0.001$), had more medicines in use ($p < 0.001$ based on univariate regression analysis) and had lower educational levels. Elderly patients who use more medicines placed the most value on the availability of CPS. With an ageing population and increasing numbers of home-dwelling elderly patients with multimorbidity and polypharmacy, it is expected that the general public may put more value of the provision of CPS by the pharmacist.

Participants with higher educational levels had a strong preference for convenience, but they also thought that the availability of CPS was more important than convenience viewed from a societal perspective. This result is probably because these people might need less support than people with lower educational levels.[23] Previous studies have shown that people with low literacy skills find it difficult to interpret instructions on labels and information in leaflets.[24,25] Also, people with low health literacy know significantly less about their condition.[26]

The paradox between preferences for CPS and the importance of the availability of CPS is also illustrated by the fact that most participants who preferred convenience, such as short waiting times, concurrently perceived the community pharmacist as an important healthcare provider. These findings may be attributed to most of the general public having a light disease burden but also realizing the importance of more CPS for people in need, including their own potential future needs. Furthermore, regarding preferences and the importance of the availability of services, older participants tended to prefer CPS over convenience and deemed CPS availability more important.

Moreover, the general public may regard the community pharmacist as a healthcare provider but may lack actual experiences and therefore expectations. And also miss the pharmacist-patient relationship to substantiate this claim.[27,28] Furthermore, although most members of the general public may regard the pharmacist as a healthcare provider, many patients still prefer to discuss issues concerning medication with their physicians.[29–31] Non-dispensing pharmacists, based in the GP's office, were able to build their relationships with patients and gain trust.[32,33] Therefore, pharmacists within the community pharmacy setting are also expected to gain trust and build pharmacist-patient relationships as long as they are capable of providing CPS.

Earlier research has indicated that general practitioners do not fully address patients' information needs. This lack could present pharmacists with an opportunity.[30] A potential barrier here could be the lack of privacy that people experience within the community pharmacy setting to discuss healthcare-related matters.[20,34,35] Finally, some people may regard the community pharmacist predominantly as a commercially driven actor within the primary healthcare service and see CPS as an extra, but not essential, service from the community pharmacy.[20,28]

As both professional bodies and policy makers envision a greater role for the community pharmacist as healthcare provider, the profession needs to consider increasing public awareness of CPS.[5,6,20,28,36]

Strengths and limitations

This study focuses on the general public's preferences and views on the importance of the availability of different services instead of focusing on patient satisfaction after contact with CPS. Therefore, this study can provide a better understanding on how pharmacists can address the needs of the general public.

Also, the Dutch healthcare consumer panel does not recruit participants via community pharmacies, therefore eliminating bias that only participants with a positive attitude towards community pharmacy practice were enrolled in this study. Participants within the panel are also anonymous, therefore minimizing the risk of social desirable answers.

However, there were also some limitations. Participants may not have actual experiences with CPS provided by the community

pharmacist. This could be due to the lack of need for CPS, preferring the provision of CPS by another healthcare provider or being unaware that CPS is provided by community pharmacists. Therefore, participants may have had difficulties answering the questions regarding their preferences for CPS. Likewise, participants may have had actual experiences regarding convenience and would therefore prefer these above CPS.

People with low educational levels were underrepresented in this study. Thus, the general public, which consists of a higher proportion of people with lower educational levels, may prefer more CPS than the study's sample. Furthermore, the proportion of participants with a migratory background was substantially lower than that of the general Dutch population (see supplementary material), and thus results cannot be generalized to the immigrant population.[37] It is expected that this group, most likely due to literacy problems, could benefit substantially from CPS and are underrepresented in this study.

Furthermore, this study provides quantitative information on preferences for a limited number of services. Qualitative information may provide additional insights into the preferences of the general public.

Extrapolating these results to community pharmacy practice in other countries should be done with care. As the position and role of the community pharmacist in the Netherlands could predispose the general public into preferring certain services. Especially considering the fact that the general public in the Netherlands views the community pharmacist as a healthcare provider and community pharmacies are easily accessible.[38] In other countries, accessibility of community pharmacies could be less and pharmacists could primarily be viewed as shopkeepers. Also, the payment mechanisms in the Netherlands may influence perceptions of Dutch healthcare consumers compared to consumers in other countries. In the Netherlands, prescription medication and CPS need to be paid out of pocket for the first €385 (with some forms of CPS being exempted from this). After the €385 threshold has been surpassed, patients no longer have to pay for prescription medicines or CPS. This could impact preferences and perceived importance of CPS, most probably with patients passing the €385 threshold.

Implications for daily practice

In this study convenience and CPS were juxtaposed. This may suggest that convenience and CPS somehow fall on opposite ends of a consumer preference spectrum. In reality, pharmacies offer a variety of services, with the type of service and convenience of that service both playing a role in the development of consumer preferences. For example, CPS will better serve the needs of more patients if it is offered in a manner which is convenient for them to obtain.

The pharmacy profession needs to focus on promoting the benefits of CPS identified in numerous papers[7–14] and show that this is a core competency of the community pharmacist. Studies have found that people do not use these services because they are unaware that the services are provided.[20] Once people become acquainted with these services, demand is expected to increase automatically.

Studies focusing on medical care indicate the implementation and effectiveness of additional care-related activities also depend on the amount of trust patients have in their physicians.[39–41] The same effect is probably true in community pharmacy practice. Patients predominantly prefer a community pharmacy that offers convenience and a convenient dispensing process.[42] Thus, community pharmacists unable to organize logistics may also reduce the amount of trust people have in their ability to provide CPS.[43]

Community pharmacists should tailor their services to the needs of the population they serve. In general this implies focusing on the provision of convenience as this is preferred by the majority. But this should be done in tandem with the provision of CPS, as this is also perceived to be important. When addressing needs regarding convenience, this will probably provide a basis for the provision of CPS and address latent needs of patients.

Conclusion

In contrast to current development within the community pharmacy profession, the general public still predominantly prefers convenience over CPS. However, the general public also realizes the importance of CPS and does regard the community pharmacist predominantly as a healthcare provider. Community pharmacists should therefore uphold convenience (e.g. opening hours and maintaining an efficient and convenient dispensing process) and concomitantly offer CPS and raise awareness of their role as healthcare providers.

Data availability

The data used in this research is not available on request.

CRediT authorship contribution statement

Jeroen M. van de Pol: Methodology, Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing, Visualization. **Liset van Dijk:** Methodology, Validation, Investigation, Resources, Data curation, Writing - review & editing, Funding acquisition. **Ellen S. Koster:** Writing - review & editing. **Judith de Jong:** Writing - review & editing. **Marcel L. Bouvy:** Writing - review & editing, Supervision, Project administration.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.sapharm.2020.05.014.

References

1. Velzel E, Heida JP, Cozijnsen M. *Versterking van de zorgfunctie van openbaar apothekers. Strategies in regulated markets (SiRM). Utrecht*. 2018.
2. arbeidsmarktonderzoek V&VN. Personeelstekorten in de zorg. Oplossingen van de werkvloer. 6 oktober 2017. URL: https://www.venvn.nl/Portals/1/Downloads/Personeelstekorten-zorg-oplossingen-van-de-werkvloer.pdf.
3. Smith MA. Primary care teams and pharmacist staffing ratios: is there a magic number? *Ann Pharmacother*. 2018 Mar;52(3):290–294.
4. Mossialos E, Courtin E, Naci H, et al. From "retailers" to healthcare providers: transforming the role of community pharmacists in chronic disease management. *Health Pol*. 2015 May;119(5):628–639.
5. Eades Ferguson, O'Carrol. Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC Publ Health*. 2011;11:582.
6. Hindi AMK, Schafheutle EI, Jacobs S. Community pharmacy integration within the primary care pathway for people with long-term conditions: a focus group study of patients', pharmacists' and GPs' experiences and expectations. *BMC Fam Pract*. 2019 Feb 8;20(1):26.
7. Armour CL, Smith L, Krass I. Community pharmacy, disease state management, and adherence to medication – a review. *Dis Manag Health Outcome*. 2008;16:245–254.
8. Cheema E, Sutcliffe P, Singer DR. The impact of interventions by pharmacists in community pharmacies on control of hypertension: a systematic review and meta-analysis of randomized controlled trials. *Br J Clin Pharmacol*. 2014;78:1238–1247.
9. Lindenmeyer A, Hearnshaw H, Vermeire E, Van Royen P, Wens J, Biot Y. Interventions to improve adherence to medication in people with type 2 diabetes mellitus: a review of the literature on the role of pharmacists. *J Clin Pharm Therapeut*. 2006;31:409–419.
10. Bell S, McLachlan AJ, Aslani P, Whitehead P, Chen TF. Community pharmacy services to optimise the use of medications for mental illness: a systematic review. *Aust N Z Health Pol*. 2005;2:29.
11. Blenkinsopp A, Anderson C, Armstrong M. Systematic review of the effectiveness of community pharmacy-based interventions to reduce risk behaviours and risk factors for coronary heart disease. *J Publ Health Med*. 2003;25:144–153.
12. Ensing HT, Koster ES, Dubero DJ, et al. Collaboration between hospital and community pharmacists to address drug-related problems: the HomeCoMe-program. *Res Soc Adm Pharm*. 2018 May 8;(17):30925–30927. pii: S1551-7411.
13. Verdoorn S, Kwint HF, Hoogland P, et al. Drug-related problems identified during medication review before and after the introduction of a clinical decision support system. *J Clin Pharm Therapeut*. 2018 Apr;43(2):224–231.
14. Van Eikenhorst L, Taxis K, van Dijk L, et al. Pharmacist-led self-management interventions to improve diabetes outcomes. A systematic literature review and meta-analysis. *Front Pharmacol*. 2017 Dec 14;8:891.
15. Anderson C, Blenkinsopp A, Armstrong M. Feedback from community pharmacy users on the contribution of community pharmacy to improving the public's health: a systematic review of the peer reviewed and non-peer reviewed literature 1990-2002. *Health Expect*. 2004 Sep;7(3):191–202.

16. Ogunbayo OJ, Schafheutle EI, Cutts C, et al. Self-care of long-term conditions: patients' perspectives and their (limited) use of community pharmacies. *Int J Clin Pharm*. 2017 Apr;39(2):433–442.
17. Ensing HT, Koster ES, Sontoredjo TAA, et al. Pharmacists' barriers and facilitators on implementing a post-discharge home visit. *Res Soc Adm Pharm*. 2017 Jul - Aug;13 (4):811–819.
18. Van de Pol JM, Koster ES, Hövels AM, et al. How community pharmacists prioritize cognitive pharmaceutical services. *Res Soc Adm Pharm*. 2018 Sep 26. https://doi.org/10.1016/j.sapharm.2018.09.012.
19. Bryant LJ, Coster G, Gamble GD, et al. General practitioners' and pharmacists' perceptions of the role of community pharmacists in delivering clinical services. *Res Soc Adm Pharm*. 2009 Dec;5(4):347–362.
20. Hindi AMK, Schafheutle EI, Jacobs S. Patient and public perspectives of community pharmacies in the United Kingdom: a systematic review. *Health Expect*. 2018 Apr;21 (2):409–428.
21. Shea B, Santesso N, Qualman A, et al. Consumer-driven health care: building partnerships in research. *Health Expect*. 2005 Dec;8(4):352–359.
22. Brabers AEM, Reitsma-van Rooijen M, De Jong JD. *Consumentenpanel Gezondheidszorg: Basisrapport Met Informatie over Het Panel*. NIVEL; 2015. ISBN 978-94-6122-303-6.
23. Koster ES, Philbert D, Bouvy ML. Health literacy among pharmacy visitors in The Netherlands. *Pharmacoepidemiol Drug Saf*. 2015 Jul;24(7):716–721.
24. Davis TC, Wolf MS, Bass 3rd PF, et al. Literacy and misunderstanding prescription drug labels. *Ann Intern Med*. 2006 Dec 19;145(12):887–894.
25. Davis TC, Wolf MS, Bass 3rd PF, et al. Low literacy impairs comprehension of prescription drug warning labels. *J Gen Intern Med*. 2006 Aug;21(8):847–851.
26. Gazmararian JA, Williams MV, Peel J, et al. Health literacy and knowledge of chronic disease. *Patient Educ Counsel*. 2003 Nov;51(3):267–275.
27. Donald M, King-Shier K, Tsuyuki RT, et al. Patient, family physician and community pharmacist perspectives on expanded pharmacy scope of practice: a qualitative study. *CMAJ Open*. 2017 Mar 6;5(1):E205–E212.
28. Gidman W, Ward P, McGregor L. Understanding public trust in services provided by community pharmacists relative to those provided by general practitioners: a qualitative study. *BMJ Open*. 2012 May 14;2(3).
29. Anderson C, Blenkinsopp A, Armstrong M. Feedback from community pharmacy users on the contribution of community pharmacy to improving the public's health: a systematic review of the peer reviewed and non-peer reviewed literature 1990-2002. *Health Expect*. 2004 Sep;7(3):191–202.
30. Lamberts EJ, Bouvy ML, van Hulten RP. The role of the community pharmacist in fulfilling information needs of patients starting oral antidiabetics. *Res Soc Adm Pharm*. 2010 Dec;6(4):354–364.
31. Bissell P, Blenkinshop A, Short D, et al. Patients' experiences of a community pharmacy-led medicine management service. *Health Soc Care Community*. 2008;26: 363–369.
32. Hazen ACM, de Bont AA, Leendertse AJ, et al. How clinical integration of pharmacists in general practice has impact on medication therapy management: a theory-oriented evaluation. *Int J Integr Care*. 2019 Jan 2;19(1):1.
33. Hazen ACM, Zwart DLM, Poldervaart JM, et al. Non-dispensing pharmacists' actions and solutions of drug therapy problems among elderly polypharmacy patients in primary care. *Fam Pract*. 2019 Jan 10;36(5):544–551.
34. Gidman W, Cowley J. A qualitative exploration of opinions on the community pharmacists' role amongst the general public in Scotland. *Int J Pharm Pract*. 2013 Oct;21(5):288–296.
35. Watson MC, Silver K, Watkins R. How does the public conceptualise the quality of care and its measurement in community pharmacies in the UK: a qualitative interview study. *BMJ Open*. 2019 Mar 30;9(3), e027198.
36. Lindsey L, Husband A, Steed L, et al. Helpful advice and hidden expertize: pharmacy users' experiences of community pharmacy accessibility. *J Public Health*. 2017 Sep 1; 39(3):609–615.
37. Central Bureau for Statistics. Https://opendata.cbs.nl/statline/#/CBS/nl/. Visited on March 7th 2019.
38. Vogler S, Habimana K, Arts D. Does deregulation in community pharmacy impact accessibility of medicines, quality of pharmacy services and costs? Evidence from nine European countries. *Health Pol*. 2014 Sep;117(3):311–327.
39. Rowe R, Calnan M. Trust relations in health care–the new agenda. *Eur J Publ Health*. 2006 Feb;16(1):4–6.
40. Thom DH, Hall MA, Pawlson LG. Measuring patients' trust in physicians when assessing quality of care. *Health Aff*. 2004 Jul-Aug;23(4):124–132.
41. Van den Brink-Muinen A, Rijken PM. Does trust in health care influence the use of complementary and alternative medicine by chronically ill people? *BMC Publ Health*. 2006 Jul 18;6:188.
42. Merks P, Kaźmierczak J, Olszewska AE, et al. Comparison of factors influencing patient choice of community pharmacy in Poland and in the UK, and identification of components of pharmaceutical care. *Patient Prefer Adherence*. 2014 May 14;8: 715–726.
43. Nunes FG, Anderson JE, Martins LM. Patient reactions to community pharmacies' roles: evidence from the Portuguese market. *Health Expect*. 2015 Dec;18(6): 2853–2864.