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Pharmacy services and role development in UK general practice: a cross-sectional survey

Vilius Savickas[a] (iD), Ellie Foreman[a], Anmol Ladva[a], Sukvinder K. Bhamra[a] (iD), Ravi Sharma[b] (iD) and Sarah A. Corlett[a] (iD)

[a]Medway School of Pharmacy, Universities of Greenwich and Kent, Chatham Maritime, Kent, UK and [b]Royal Pharmaceutical Society, London, UK

Abstract

Background The 'Clinical Pharmacists in General Practice' (CPGP) pilot provided a template for general practice pharmacy professionals' (GPPPs) roles encouraging NHS England to fund >2000 practice-based pharmacists. However, many GPPPs work outside the CPGP initiative and little is known about the services they provide.

Objectives To explore services provided by all UK GPPPs (pharmacists/pharmacy technicians), including the types of services, perceived benefits and barriers to role development.

Methods A 26-item electronic questionnaire was developed using SurveyMonkey and piloted during cognitive interviews. A cross-sectional survey was conducted via social media, primary care organisations and emails to CPGP pilot sites between November 2018 and March 2019. Three reminders were sent 1 week apart.

Key findings Ninety-one complete responses were received (81 pharmacists; 10 technicians). Over 80% of pharmacists provided clinical services, such as medication reviews or management of long-term conditions. More pharmacists within CPGP pilot managed repeat prescribing requests ($P = 0.035$). Technicians took responsibility for primarily non-clinical roles, including commissioning or safety alerts/drug recalls. A third of GPPPs wished to develop care home services. Perceived benefits of GPPPs' services included improved utilisation/development of professional skills, identifying medicines-related issues and reduction in medication waste. Respondents were satisfied with professional relationships but reported workload issues, limited patient awareness of their roles and restricted opportunities to contribute to service development, which was associated with unsatisfactory support/mentorship ($P < 0.001$).

Conclusion General practice pharmacy professionals deliver clinical and non-clinical services which may benefit patients, general practice and the healthcare system. General practices and national organisations should provide GPPPs with tailored support and exploit the combined strengths of pharmacists and pharmacy technicians to tackle increased workload.

Introduction

The UK National Health Service (NHS) is under considerable strain due to ongoing general practitioner (GP) workforce crisis.[1,2] More than a half of GPs in England are close to retirement age and 90% feel adversely affected by increasing workload.[3] In order to alleviate these service pressures, NHS England launched the 'Clinical Pharmacists in General Practice' (CPGP) pilot, which part-funded 490

pharmacists with an aim of enhancing patients' access to general practice, supporting the management of long-term conditions and improving communication between care settings.[4–6] The success of phase 1 urged the Government to invest £112 million into an additional 1500 pharmacists to undertake largely patient-facing clinical roles contributing to the delivery of quality and outcomes framework

(QOF) and a range of enhanced services.[5,7,8] The inception of Primary Care Networks (PCNs) committed to future expansion and integration of these roles alongside other allied healthcare professionals by 2024.[9,10]

Recent reports showed that pharmacists within CPGP pilot felt well-integrated and engaged in a wide variety of clinical and non-clinical roles.[5,11] Relatively, little is known about practice-based pharmacists outside the NHS England's pilot. Early trials demonstrated that practice pharmacist-led medication reviews may reduce polypharmacy and drug expenditure.[12–14] More recent research involving general practice pharmacy professionals (GPPPs; pharmacists and/or pharmacy technicians) reported increased job satisfaction and a positive reception of their roles by patients and colleagues.[15–18] Unfortunately, these studies either recruited respondents with little-to-no general practice experience[16,17] or focused on a single professional group.[11,15,18]

A Scottish survey provided a fresh perspective on GPPPs' roles and their successful integration.[19] However, its findings might not be applicable elsewhere, for instance in England where GPPP services are less well-established and primarily funded by NHS England.[6] There is a need to explore differences between GPPPs in England and services provided by the whole workforce; both pharmacists within and outside of the pilot; and also pharmacy technicians. Upon reviewing the literature, one may hypothesise that pharmacists within the NHS England's scheme are less experienced and assume different roles compared to either those outside the pilot or to pharmacy technicians, for example by delivering a wider range of services.[11,18,19] The improved understanding of such differences may be essential for workforce planning and the future development and integration of GPPPs' roles in primary care.

This survey-based study aimed to explore the spectrum of services provided by all UK GPPPs, including the types of services delivered, the perceived barriers to role development and the possible benefits to patients, surgeries, healthcare system and GPPPs themselves. In the absence of published comparisons, it focused on differences between the pharmacists within and outside the CPGP pilot and between the pharmacists and practice-based technicians who are becoming increasingly important for the effective delivery of GPPP services.[17,18,20] The preliminary account of study findings has been reported previously.[21]

Methods

Ethical approval

This study was approved by the Medway School of Pharmacy Research Ethics Committee in September 2018 (REF01918).

Study design

This study was an open, voluntary, cross-sectional electronic survey developed using the SurveyMonkey platform and was accessible to GPPPs in all four countries of the UK. During November 2018–January 2019, the questionnaire was distributed via the Primary Care Pharmacy Association (PCPA), social media pages (Twitter, Facebook, LinkedIn) and direct emails to gatekeepers at general practice surgeries/clinical commissioning groups in Kent. In March 2019, the questionnaire was emailed to 362 CPGP pilot sites using the list published by NHS England.[22] Three reminders, which included non-targeted posts on social media, were sent 1-week apart for each recruitment strategy.

Prior to questionnaire completion, each respondent was provided with background information about the study, including the purpose of the study, the length of the questionnaire, the research team and data management. They were then asked to confirm that they met the eligibility criteria, that is registered UK pharmacist or pharmacy technician, employed to provide professional services within the surgery or on surgery's behalf and not employed exclusively to provide professional services[23] in the dispensary or pharmacy within the surgery. Completion of the questionnaire implied a consent to participate. Prospective respondents were incentivised by an opportunity to win a £20 Amazon voucher.

The likelihood of duplicate entries was minimised by the in-built SurveyMonkey system to detect and register respondent's IP address, which prevented respondents from completing the questionnaire twice using the same device.

Questionnaire development

Individual questions were generated from pre-existing GPPP research,[15–17,24,25] relevant NHS policies[6,7] and CPGP service specification.[8] The draft questionnaire (Appendix S1) was piloted during 30- to 40-min, face-to-face or telephone cognitive interviews with a convenience sample of five practice-based pharmacists (3 from South East England, 1 – North East England and 1 – Wales).[26,27] Following the interviews, a number of alterations were introduced, for instance, by refining the variety of services or amending the wording of Likert scale questions.

The revised questionnaire (Appendix S2) was approved by five researchers and consisted of 26 items in four sections (1–4 questions per page, split across 19 screens): 6 single- or multiple-answer questions to capture the range of services or clinical specialities and barriers to professional roles, 4 multiple-answer questions concerning the benefits of services, two 5-point Likert scale items from

'Strongly Agree' to 'Strongly Disagree' relating to professional role and practice relationships (10 and 12 statements, respectively) and 14 single- or multiple-answer questions to ascertain respondents' demographics. Participants were able to add comments throughout the questionnaire.

Adaptive questioning was used in certain question items to explore specific responses, for example the percentage of time spent delivering services which were selected in a previous question. Mandatory items on each screen had to be answered before participants were allowed to progress; however, they were able to review their answers prior to submitting the questionnaire.

Data analysis

The data of respondents who answered at least one mandatory question were included in the analysis. Following an automatic data extraction from SurveyMonkey, all data were stored on a password-protected network within the University of Kent. All questionnaire data were anonymous, although respondents were able to voluntarily provide their email addresses to enter the prize draw. These email addresses were kept separate from the rest of the data and were permanently deleted once the draw was complete. Statistical analysis was conducted using SPSS (v25, International Business Machines Corporation (IBM), Armonk, New York, USA). Descriptive data were expressed as the number of respondents (% of total). Between-group differences or associations for categorical variables were determined using Pearson's chi-square or Fisher's exact tests with Freeman–Halton extension (for contingency tables larger than 2x2)[28] followed by Bonferroni corrections where appropriate. Data underpinning each association are presented in the Appendix S3. Statistical significance was set at $P < 0.05$.

Results

Respondents

A total of 105 professionals responded to the questionnaire (91 complete responses; completion rate 86.7%). Most respondents were located in London or the South East of England (47.3%, 43/91) followed by South West of England (18.7%, 17/91), East Midlands, North East of England and West Midlands (6.6%, 6/91 each). Four responses (4.4%) were received from Wales and 1 (1.1%) from Scotland. GPPPs were predominantly pharmacists (89.0%, 81/91), and a quarter (26.4%, 24/91) had >20 years of experience (Table 1). The majority had worked in general practice for ≤5 years (85.7%, 78/91) originating from either community (80.2%, 73/91) or hospital pharmacy (51.7%, 47/91) backgrounds.

Fifty-eight per cent of pharmacists (47/81) were employed within the CPGP pilot. No significant demographic differences between CPGP pilot pharmacists and those employed outside the scheme were observed although those outside the pilot were somewhat older and a higher proportion was male. Compared to pharmacists, pharmacy technicians had more general practice experience (Fisher's exact test, $P = 0.019$) and were more likely to come from a less traditional professional background, such as clinical research (Fisher's exact test, $P = 0.016$). At the time of survey, 76.5% of pharmacists (62/81) had completed or were completing an independent prescribing qualification. Slightly more pharmacists within than outside the pilot had completed or were completing a prescribing qualification even though the difference was not significant (80.9%, 38/47 vs. 70.6%, 24/34).

Professional services

Over 70% of GPPPs (74/104) had no particular clinical speciality. A quarter specialised in cardiology (27.9%, 29/104) or care of the elderly (25.0%, 26/104). Diabetes and endocrinology were the most popular choices for developing a future speciality (36.2%, 34/94) followed by cardiology (34.0%, 32/94) and mental health (31.9%, 30/94).

Each participant provided an average of 9.1 services (95% confidence intervals (CI) 8.3–9.9; $n = 104$). The most common services provided by all GPPPs are shown in Figure 1. Pharmacists commonly engaged in medication reviews (91.4%, 74/81), management of polypharmacy (84.0%, 68/81), medicines reconciliation/transfer of care or management of long-term conditions (81.5%, 66/81 each) and audits (72.8%, 59/81). There were few statistically significant associations between different services and the three groups of GPPPs. Those within the pilot were more likely than others to be managing repeat prescribing requests (70.2%, 33/47 vs. 47.1%, 16/34; $\chi^2 = 4.4$, df = 1, $P = 0.035$). Nine out of 10 pharmacy technicians liaised with commissioners, 8 – managed safety alerts/drug recalls, developed/implemented standard operating procedures (SOPs) or provided education/training. Regarding patient-facing roles, seven pharmacy technicians provided medicines reconciliation/transfer of care services, six managed repeat prescribing requests or domiciliary visits and five delivered medication reviews.

Nearly one in five of GPPPs (18.9%, 18/95) spent >50% of their time providing medication reviews followed by the management of long-term conditions (14.7%, 14/95), management of polypharmacy (12.6%, 12/95) and repeat prescribing requests (11.6%, 11/95) (Figure 2). Services requiring the least time (≤5%) were

Table 1 A demographic comparison of respondents

	All respondents (n = 91)	CPGP pilot pharmacists (n = 47)	Non-CPGP pilot pharmacists (n = 34)	Pharmacy technicians (n = 10)
Gender, n (%)				
Male	26 (28.6)	12 (25.5)	12 (35.3%)	2 (20.0)
Female	63 (69.2)	35 (74.5)	20 (58.8%)	8 (80.0)
Prefer not to say	2 (2.2)	0 (0.0)	2 (5.9%)	0 (0.0)
Age groups, years, n (%)				
<25	3 (3.3)	2 (4.3)	1 (2.9%)	0 (0.0)
25–34	35 (38.5)	21 (44.7)	13 (38.2%)	1 (10.0)
35–44	32 (35.2)	15 (31.9)	13 (38.2%)	4 (40.0)
45–54	17 (18.7)	9 (19.1)	4 (11.8%)	4 (40.0)
55–65	4 (4.4)	0 (0.0)	3 (8.8%)	1 (10.0)
Experience as a pharmacy professional (years), n (%)				
<1	1 (1.1)	0 (0.0)	1 (2.9%)	0 (0.0)
1–5	15 (16.5)	11 (23.4)	3 (8.8%)	1 (10.0)
6–10	21 (23.1)	10 (21.3)	8 (23.5%)	3 (30.0)
11–15	22 (24.2)	11 (23.4)	9 (26.5%)	2 (20.0)
16–20	8 (8.8)	4 (8.5)	3 (8.8%)	1 (10.0)
>20	24 (26.4)	11 (23.4)	10 (29.4%)	3 (30.0)
Experience in general practice (years), n (%)				
<1	22 (24.2)	13 (27.7)	8 (23.5%)	1 (10.0)
–5	56 (61.5)	31 (66.0)	22 (64.7%)	3 (30.0)
6–10	6 (6.6)	2 (4.3)	1 (2.9%)	3 (30.0)*
11–15	4 (4.4)	1 (2.1)	1 (2.9%)	2 (20.0)
16–20	2 (2.2)	0 (0.0)	1 (2.9%)	1 (10.0)
>20	1 (1.1)	0 (0.0)	1 (2.9%)	0 (0.0)
Experience in other sectors, n (%)				
Community pharmacy	73 (80.2)	39 (83.0)	27 (79.4%)	7 (70.0)
Hospital pharmacy	47 (51.7)	25 (53.2)	16 (47.1%)	6 (60.0)
Commissioning of services	30 (33.0)	12 (25.5)	14 (41.2%)	4 (40.0)
Academia	8 (8.8)	4 (8.5)	3 (8.8%)	1 (10.0)
Pharmaceutical industry	7 (7.7)	5 (10.6)	2 (5.9%)	0 (0.0)
Prison pharmacy	4 (4.4)	3 (6.4)	1 (2.9%)	0 (0.0)
Online pharmacy	3 (3.3)	2 (4.3)	1 (2.9%)	0 (0.0)
Other	8 (8.8)	4 (8.5)	0 (0.0%)	4 (40.0)**

CPGP, 'Clinical Pharmacists in General Practice' (NHS England's pilot scheme).
*$P = 0.019$ and
**$P = 0.016$ for differences between pharmacist and technician respondents determined using Fisher's exact tests.

the management of safety alerts/drug recalls (52.6%, 50/95), audits (48.4%, 46/95) and development/implementation of SOPs (43.2%, 41/95).

Care home visits (32.9%, 25/76), the management of common or minor ailments/injuries (25.0%, 19/76) and anticoagulation services (17.1%, 13/76) were the leading choices of future services. Technicians wished to be more involved in medication reviews (50%, 5/10 vs. 0% of pharmacists; Fisher's exact test, $P < 0.001$).

Benefits and barriers

The most common perceived benefits of GPPP services included the better utilisation of pharmacy professionals'

skills (92.7%, 89/96), identifying medicines-related issues (91.7%, 88/96), development of new knowledge and skills (90.6%, 87/96) and a reduction in medication waste (90.6%, 87/96) (Figure 3). Significantly fewer pharmacy technicians than pharmacists felt that their services improved patient access to health care (Fisher's exact test, $P = 0.012$) or treatment outcomes (Fisher's exact test, $P < 0.001$), or reduced inappropriate polypharmacy (Fisher's exact test, $P = 0.01$) or the rate of hospitalisations (Fisher's exact test, $P = 0.036$). Lack of time (57.9%, 55/95), workload (54.7%, 52/95) and inadequate funding (45.3%, 43/94) stood out as the key barriers to working in practices and role development. Pharmacists pointed out the difficulties of covering 'too many practices' and
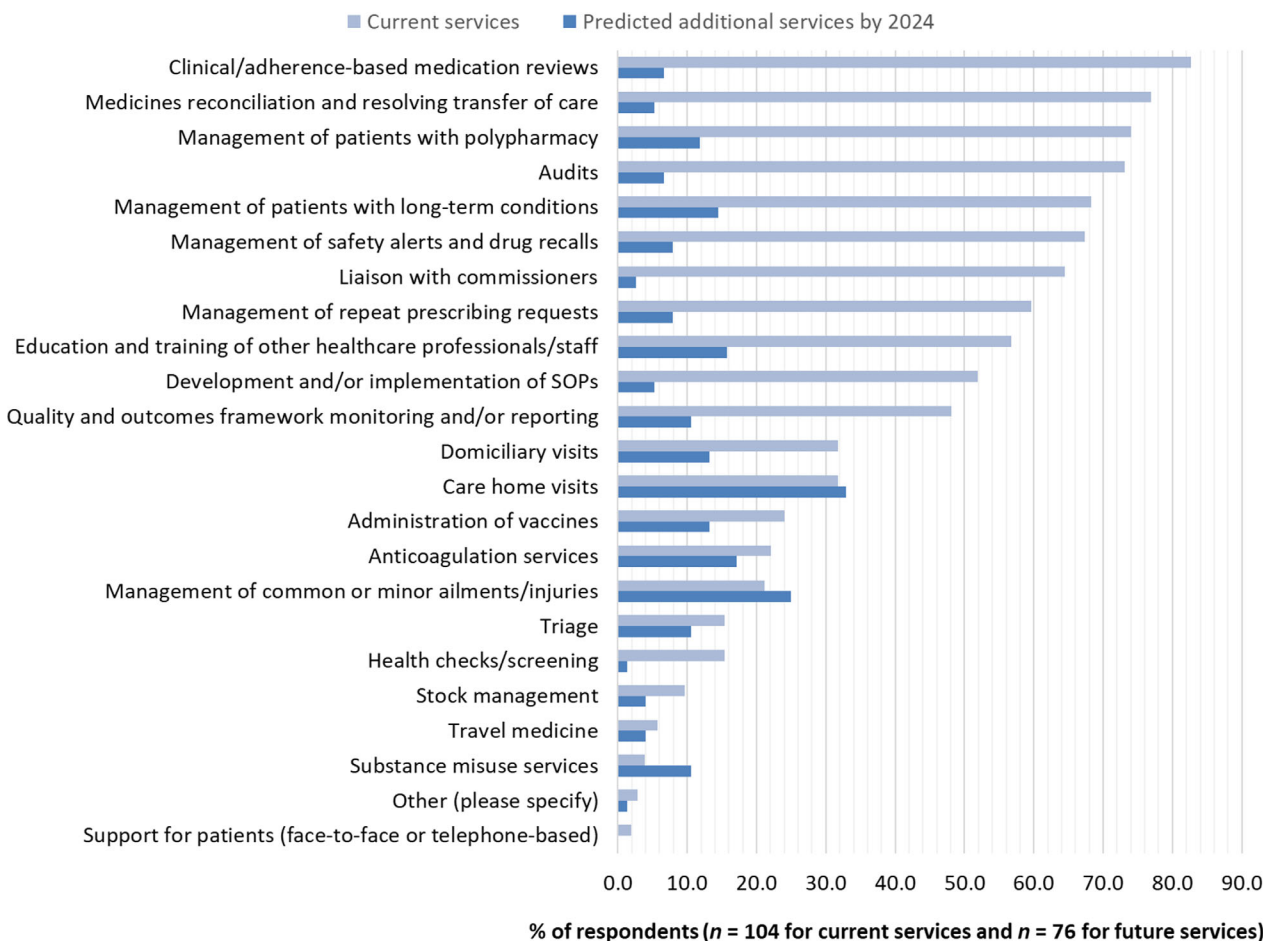
Figure 1 Current and future services indicated by respondents to the survey. SOPs, standard operating procedures.
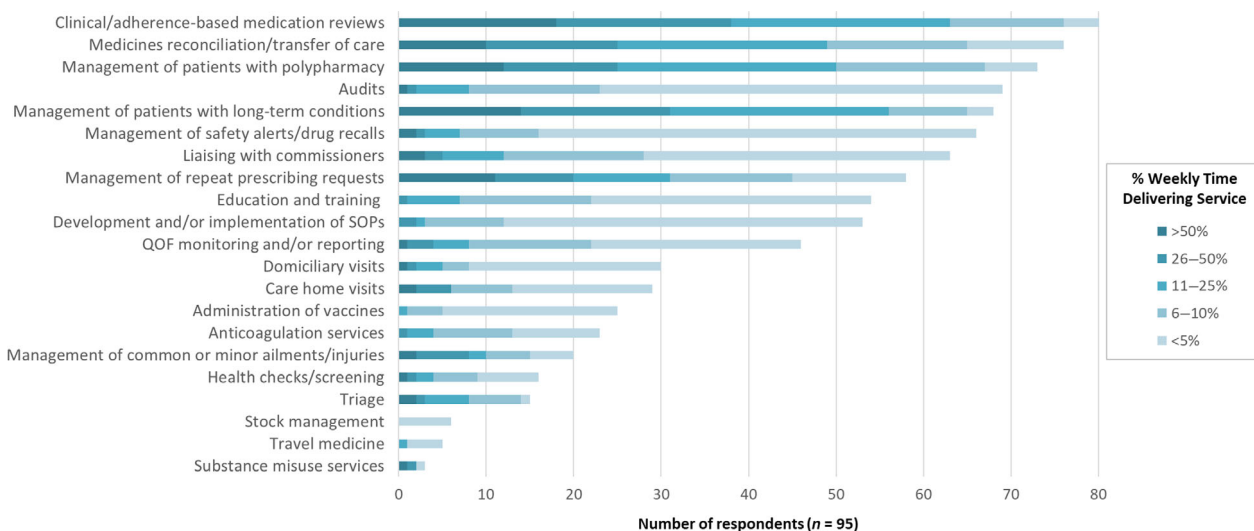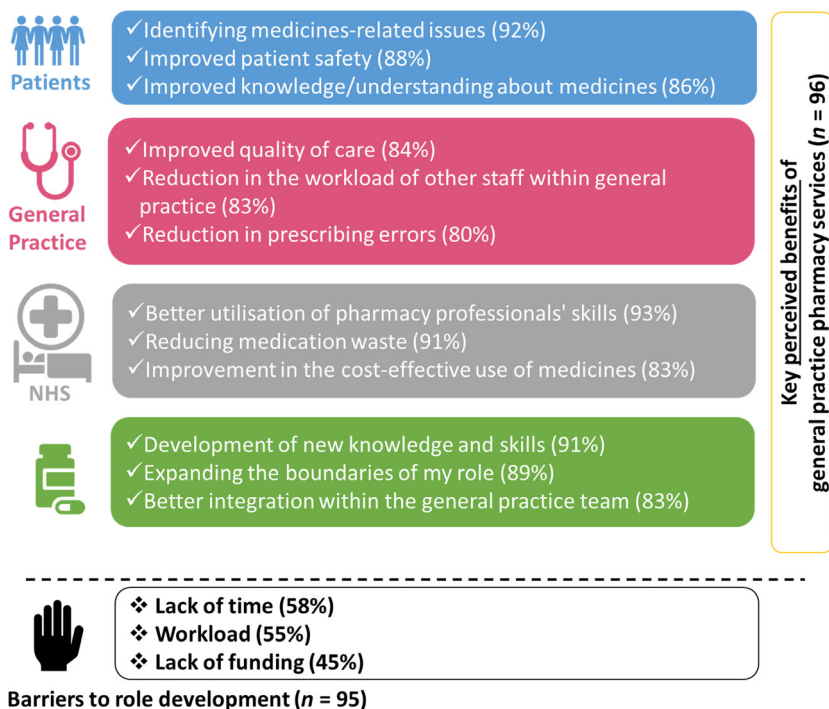

Figure 2 Proportion of average weekly time spent delivering services. SOPs, standard operating procedures; QOF, quality and outcomes framework.

Figure 3 Key perceived benefits of general practice pharmacy services and barriers to role development or working in general practice.

the impact of 'managing repeat medication re-authorisation' on their workload.

The majority of respondents felt adequately trained (79.4%, 73/92) and supported/mentored (73.9%, 68/92). One pharmacist highlighted the absence of 'formal networks of practice pharmacists' and 'poor support' from their professional body. Although most respondents were confident/competent in their professional roles (85.9%, 79/92), only 40.2% (37/92) had sufficient opportunity to contribute towards the development of services. This perception was greater amongst those with inadequate support/mentorship (Fisher's exact test, $P < 0.001$). Despite this, respondents were satisfied with their contribution to patient outcomes, work/development of the practice, the functioning/development of the wider healthcare system and GPPPs roles (>75% agreement each). Only 58.7% of GPPPs (54/92) were satisfied with the amount of time given to complete their daily tasks. Paradoxically, more respondents perceived that they had a good work-life balance (77.2%, 71/92).

General practice pharmacy professionals were overall satisfied with their working relationships, perceived value of their services and the level of trust from patients, GPs and other healthcare professionals (>80% agreement each). GPPPs who reported good relationships with GPs were more likely to feel satisfied with their level of mentorship/support (Fisher's exact test, $P = 0.029$). Three-quarters of respondents (71/92) thought that GPs were aware of services they provided compared to 57.6%

awareness by other healthcare professionals (53/92) or 43.5% by patients (40/92). Respondents who indicated low patient awareness were less likely to have good patient–professional relationships (Fisher's exact test, $P = 0.019$) or feel confident/competent in their roles (Fisher's exact test, $P = 0.009$).

Over 90% of GPPPs wished to remain in the field by 2024 either by working within the same surgery (61.5%, 56/91) or by moving to a different surgery (23.1%, 21/91). A smaller proportion was undecided (16.5%, 15/91) or had unlisted career options in mind (8.8%, 8/91), for example, becoming a partner at their surgery. Satisfactory support/mentorship was associated with a choice to remain within the same surgery ($\chi^2 = 16.7$, df = 2, $P < 0.001$).

Discussion

This cross-sectional survey investigated the services provided by UK GPPPs, including the types of services, perceived benefits for stakeholders and barriers to role development, while comparing practice-based pharmacists and pharmacy technicians as well as pharmacists within and outside the CPGP pilot scheme. Clinical activities, such as management of patients with long-term conditions or polypharmacy, remained the key services amongst all practice-based pharmacists, although significantly more pharmacists within the NHS England's pilot managed repeat prescribing requests. As anticipated, pharmacy

technicians engaged in primarily administrative or technical tasks hoping to become more involved in the future delivery of medication reviews. Respondents suggested that GPPP services may improve patient safety, practice capacity and cost-effectiveness of medicines while helping to advance their relatively new professional roles. Insufficient time/funding and workload were the primary barriers to GPPP roles, yet respondents also highlighted issues concerning role awareness and restricted contribution to service development.

The broad inclusion criteria provided this study with unique comparisons between general practice pharmacists and pharmacy technicians and, for the first time, between pharmacists within and outside the CPGP scheme. However, the sampling approach was England centric, and therefore, very few participants were recruited from the devolved nations. This given the differences in organisation and healthcare policy between nations and the low response rate generally from pharmacy technicians and GPPPs outside of London and the South East limits the generalisability of the findings.

Despite this setback, respondent demographics and the range of professional services ascertained by this survey were comparable to surveys of CPGP pharmacists and Scottish GPPPs, which suggested that those within the pilot were slightly (albeit not significantly) younger and possibly less experienced than other GPPPs.[11,19] We also found that 70% of pharmacists within the NHS England's scheme managed repeat prescribing requests compared to only 47% of those outside the pilot even though no differences were observed in the proportion of time spent delivering this service. Two-thirds of all primary care prescriptions are repeated, resulting in 2.7 million GP hours per year.[29] The results presented here imply that organisations participating in the NHS England's pilot may have utilised the new GPPPs' roles to help reduce this repeat prescription burden, while such a strategy may be far less common amongst the organisations external to the scheme. Over 75% of responding pharmacists were prescribers, and more than 1 in 10 spent >50% of their time managing repeat prescription requests, urging the general practice employers to find the correct balance between this life-saving task for GPs and other essential services of medicines optimisation previously detailed in the NHS England's service specification.[8] Six pharmacy technicians were also engaged in repeat prescribing service, possibly by assisting with non-clinical aspects of this time-consuming task, such as prescription collection or management.[17,18,20] Similar to previous reports,[18,19] some technicians were involved in patient-facing activities, including medication reviews, advocating for their role as an asset to efficient pharmacist-led clinical services.

Nearly 60% of GPPPs reported the lack of time or workload as a barrier to their roles. This issue was raised by UK and Australian qualitative studies[17,30] and should be a priority to prevent a professional burnout experienced by GPs.[31] Although affected by time constraints, the majority of GPPPs were surprisingly pleased with their work–life balance, which may be related to more flexible working hours compared to either community or hospital pharmacy.[32,33] Most pharmacists had prior community pharmacy experience; therefore, this contradictory finding may also reflect a recent transition from the mentally draining, 'in-charge' community pharmacist's role to the less managerial general practice post.[32,34]

The request for more GP support amongst CPGP participants[11] was replicated in this study, which implied that inadequate support or mentorship could be overcome through improved GPPP-GP relationships. In turn, the findings hinted that better support/mentorship may increase staff retention and reduce the perceived 'restriction to contribute'. Resembling other studies,[17,35] some respondents highlighted the low GPPP service awareness amongst patients, which was associated with poor working relationships and low self-confidence. According to the qualitative study by Tan *et al.*,[30] such effects are likely to be temporary as GPPPs settle into new roles and demonstrate their professional capabilities. At the time of the survey, 85% of respondents had worked in general practice for 5 years or less indicating the large amount of further work to be completed when raising awareness of their roles amongst the public and other healthcare professionals. Indeed, as pointed out by one of the respondents, national organisations, such as the PCPA, the Royal Pharmaceutical Society and the Royal College of General Practitioners, will continue to play a major role both in this awareness-raising process and in providing GPPPs with adequate centralised support or mentorship mechanisms.

Service benefits identified by GPPPs compared to both early trials[12-14] and more recent qualitative studies[5,16,17,30,36] showing that GPPPs' actions may produce cost-savings, reduce GP workload, improve patients' knowledge/adherence to treatment, safeguard patient safety and help utilise pharmacy skills. Interestingly, pharmacy technicians were more sceptical about such benefits than pharmacists, which may be due to more extensive general practice experience[37] or a smaller focus on clinical services.[20]

Overall, the 5-year future of general practice pharmacy is bright with a predicted >90% staff retention rate and a 30% expansion of care home services in line with the NHS agenda, which may be a subject of future studies.[9,38,39] The growth of other services, such as

anticoagulation or management of long-term conditions, matched the future cardiology/endocrinology specialities reflecting the national cardiovascular priorities and the roles of GPPPs within the emerging PCNs.[40,41] The >20% increase in GPPP-led common/minor ailment services was unanticipated considering the Government's strategy for community pharmacies to become the first port of call in minor urgent care.[9,42] While that could be an attempt to tackle the 'incessant' demand for acute prescriptions,[43] future research may wish to explore any other reasons underlying this discrepancy.

Conclusion

The findings of this cross-sectional survey showcased the diverse range of current and future services provided by GPPPs across the UK. Practice-based pharmacists and pharmacy technicians engaged in a variety of clinical and non-clinical roles displaying a synergistic relationship which may benefit multiple stakeholders while helping overcome the barriers such as increased workload at the time of general practice workforce crisis. To our knowledge, this study was the first of its kind to report a comparison between practice-based pharmacists within and outside the CPCP pilot, exposing the possible divergence of their job roles, for instance, the distinct focus on repeat prescribing services within the NHS England's scheme. Last but not least, this research emphasised the significance of adequate GP-GPPP relationships and support/mentorship mechanisms, which together with knowledge of barriers to role development, may be pivotal to the future growth of this branch of pharmacy profession and to effective GPPPs' integration within the constantly evolving primary care structures.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest to disclose.

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Authors' contributions

VS, SC and SB conceived and designed the study. VS designed the study materials, obtained the research ethics committee's approval and conducted cognitive interviews to pilot the draft of the questionnaire. VS, EF and AL analysed the cognitive interview data and revised the draft of the questionnaire. VS, SC, SB, EF and AL agreed the final version of the questionnaire for distribution. VS led the data collection with assistance of RS, EF and AL. VS led the data analysis with assistance of SC, SB, EF and AL who had complete access to study data that support the publication. VS prepared the draft of the manuscript and other authors contributed at various stages to the final draft. All authors approved the final draft of the manuscript.

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Draft questionnaire.

Appendix S2. Revised questionnaire.

Appendix S3. Statistical tests.

Table S1. Checklist for Reporting Results of Internet E-Surveys (CHERRIES).