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Pharmacist Independent Prescribers in General Practice: Exploring Integration, Roles, and Patient Experiences

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Abstract

Since 2015, the National Health Service (NHS) has provided financial support for pharmacists to be deployed within general practice (GP) settings to alleviate operational workload pressures. This transition requires these professionals to assume new responsibilities and integrate seamlessly into GP environments. Autonomous prescribing constitutes a fundamental component of the GP pharmacist's duties; nevertheless, empirical understanding remains limited regarding both the systemic integration of pharmacists into GP practices and the distinct viewpoints and experiences of patients receiving care from them. Consequently, the objective of this investigation is to examine how pharmacist independent prescribers (PIPs) perceive their integration into general practice, while concurrently collecting data on patients' perspectives on the clinical care delivered by these pharmacists. A mixed-methods research design was conducted between December 2019 and March 2020, incorporating semi-structured interviews with PIPs (n = 13) and a subsequent questionnaire-based survey to evaluate patients' (n = 77) impressions of pharmacist-led care. Descriptive statistics were utilized to process the quantitative data. For the qualitative components, a thematic analysis approach was applied to both the interview transcripts and the open-ended text comments from the patient surveys. The interviewed independent pharmacist prescribers indicated that they undertake diverse responsibilities, spanning both direct patient-facing clinical duties and administrative, non-clinical tasks. Prominent obstacles to their smooth integration into general practice settings included a widespread lack of clarity about PIPs' clinical capabilities, as well as instances in which they were expected to operate outside their specific clinical competence. From the patient perspective, a large majority expressed satisfaction with their pharmacist consultations and affirmed trust in the medical recommendations provided for their health issues. Conversely, a small segment of the patient cohort (14%) believed a subsequent consultation with a general practitioner would remain necessary following their pharmacist visit, while 11% expressed uncertainty regarding whether additional medical follow-up was required. Pharmacist independent prescribers deliver a broad spectrum of clinical interventions to manage chronic, long-term health conditions, and these services are generally well received and acknowledged by patients. Nonetheless, targeted interventions are required to overcome the identified barriers to PIP integration within GP practices, thereby maximizing the utility of their diverse skill-mix and enhancing patient-centered healthcare delivery.

Keywords: Clinical pharmacist, Practice-based pharmacist, Pharmacist independent prescriber, General practice, Primary health care, Family practice

Introduction

The growing prevalence of patients presenting with multimorbidity, alongside the corresponding escalation in pharmaceutical interventions, has substantially intensified the operational burdens placed on general practices on a global scale [1-3]. In the United Kingdom (UK), the National Health Service (NHS) has faced a severe workforce deficit driven by challenges in recruitment, retention, and premature retirement among general practitioners [4, 5]. Findings from self-reported surveys indicate a strong correlation between increased

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general practice workloads and lower patient satisfaction [6-8].

Consequently, the NHS has introduced multiple strategic policy measures designed to broaden the clinical scope of non-medical healthcare professionals, including nurses and pharmacists [9, 10]. The "clinical pharmacists in general practice" initiative was introduced in consecutive phases, starting in 2015, by NHS England (NHSE), with the overarching goal of recruiting and upskilling thousands of pharmacists to operate as independent prescribers, primarily tasked with delivering clinical care to patients [10-12]. Since this program was established, the registry of qualified pharmacist independent prescribers (PIPs) in England has grown progressively, expanding more than threefold from 2224 in 2016 to 7348 in 2020 [13]. Furthermore, the General Pharmaceutical Council (GPhC) has recently mandated updated educational standards, ensuring that pharmacy students acquire the essential competencies and expertise to qualify as independent pharmacist prescribers concurrently with their initial professional registration with the GPhC [14].

At present, a significant proportion of practice-based pharmacists possess independent prescribing rights, and their clinical activities are concentrated on comprehensive medication reviews, the therapeutic management of chronic illnesses and minor ailments, telephone-based follow-up consultations, and direct prescribing [15-19]. Prior research involving individuals with chronic medical conditions has demonstrated that consultations conducted by GP pharmacists can offer patients enhanced accessibility to general practice services [20, 21]. Additional empirical data indicates that GP pharmacists alleviate the administrative and clinical burdens of general practitioners, allowing medical doctors to dedicate their time to individuals with highly complex pathologies [22, 23].

In contrast to established paradigms in hospital and community pharmacy environments, the deployment of PIPs within general practice represents an emergent role that is not yet uniformly structured. For instance, certain PIPs are afforded opportunities to engage extensively in patient-facing clinical functions. In contrast, others are restricted primarily to administrative duties, contingent upon the specific operational requirements of the individual general practice [15, 20, 24, 25]. Furthermore, akin to other non-medical healthcare practitioners, pharmacists frequently experience ambiguity regarding their professional boundaries and occupational identity within the general practice framework [26, 27].

Recent healthcare policy developments, such as the NHS Long Term Plan and the Pharmacy Integration Fund, are designed to expand the deployment of PIPs in general practices nationwide. It is therefore vital to understand the mechanisms that facilitate the systemic integration of PIPs within primary care to achieve optimal utilization of skill mix and optimized service delivery. To date, only a few investigations have assessed how pharmacists are integrated into general practice environments [15, 17]. One such study analyzed the functions and integration of GP pharmacists during the nascent stages of the NHSE initiative, a period characterized by a relatively low volume of PIPs and less mature clinical pharmacy roles [15]. Another investigation evaluating pharmacists' satisfaction with their integration into general practice highlighted a lack of empirical data on the real-world barriers to PIP integration in England [17].

Furthermore, there is limited evidence on how patients experience and evaluate the clinical care delivered by PIPs in the general practice setting [28]. Prior investigations exploring patient experiences and contentment with primary care pharmacist services have predominantly focused on non-patient-facing functions [29, 30]. Patient attitudes and experiences regarding general practice services serve as a critical measure of medical care delivery and act as a primary determinant of healthcare quality [31-33]. Patients who report higher satisfaction with their care are more inclined to follow medical guidance, demonstrating superior adherence and compliance, which ultimately yields enhanced clinical outcomes and greater continuity of care [34, 35]. Accordingly, this investigation seeks to analyze the integration of PIPs into general practice and to evaluate patient satisfaction with clinical consultations conducted by PIPs in English general practices.

Materials and Methods

Study design

A mixed-methods investigation was conducted between December 2019 and March 2020, integrating semi-structured qualitative interviews with PIPs and a questionnaire-based service evaluation targeting patients who had undergone clinical consultations with the PIPs. Utilizing a mixed-methods approach facilitated the evaluation of a broader sample population within a constrained time frame [36, 37].

In this framework, the qualitative interviews provided an in-depth assessment of the specific elements shaping the systemic integration of PIPs within general practice. At the same time, the patient surveys augmented these qualitative observations by gathering viewpoints directly from recipients of PIP-led care. This approach enabled the generation of more comprehensive, multidimensional insights into the integration of PIPs into the general practice environment.

Semi-structured interviews

An interview guide was constructed based on an analysis of prior literature and collaborative discussions among the investigators. This interview guide underwent pilot testing with two active GP pharmacists. The individual interviews were projected to last between 30 and 50 min. A convenience sampling approach was utilized for participant recruitment. Informational advertisements and formal study invitations were distributed during practice-based pharmacist training sessions, at professional conferences, and on dedicated social media networks. Professionals interested in participating were instructed to contact the principal investigator, AA, via email. All interviews were conducted by AA, either face-to-face or by telephone, and recruitment continued until data saturation was achieved. Every interview session was audio-recorded and subsequently transcribed verbatim by an authorized commercial transcription agency.

Questionnaire-based service evaluation

The survey instrument was structured in accordance with existing academic literature and consensus discussions within the research team (see Additional file 1: S1). Following actual clinical consultations conducted by a PIP, the questionnaire was pilot-tested with a group of five patients.

All PIPs who participated in the qualitative interview phase were requested to distribute the survey forms and the corresponding participant information leaflets to their respective patients. Patients who consented to participate filled out the questionnaire and returned it directly to the practice reception desk. The principal investigator, AA, held biweekly meetings with the participating PIPs to monitor data collection progress and retrieve completed survey responses.

Data analysis

An inductive thematic analysis was employed to evaluate qualitative data collected from open-ended survey questions and semi-structured interviews. AA initially conducted this analysis, which was subsequently reviewed independently by AY, with the full research team reaching consensus on the final codes and themes. Data management during the qualitative analysis was facilitated by NVivo 12 (QSR International). For the questionnaire-derived qualitative data, manual organization was conducted using a Microsoft Excel spreadsheet. Statistical analysis of the quantitative questionnaire data was performed using SPSS (version 26), with verification by a separate research team member, and the findings were synthesized using descriptive statistics.

Results and Discussion

Participant characteristics

Pharmacist independent prescribers

A total of 13 PIPs consented to participate in the interview process, with nine sessions conducted in person and four via telephone. The demographic attributes and professional employment status of the pharmacist independent prescribers are detailed in **Table 1**.

Table 1. Pharmacists' characteristics and their working status

Participant ID	Gender	General Practice Location	Specialty Area	Experience in GP Practice	Employment Status	Number of Questionnaire Responses After PIPs Appointment
01	Female	Dudley	PIP in Diabetes	20 years	Part time	7
02	Male	Wolverhampton	PIP in Hypertension	6 years	Part time	Did not participate
03	Female	Leicester	PIP in Hypertension	3 years	Full time	Did not participate
04	Male	Walsall	PIP in Diabetes	2 years	Full time	11

05	Male	Birmingham	PIP in Hypertension	25 years	Full time	5
06	Female	South Lakeland	PIP in Diabetes	3 years	Full time	23
07	Female	Portsmouth	PIP in Hypertension	2 years	Full time	Did not participate
08	Male	Birmingham	PIP in Diabetes	8 months	Part time	20
09	Female	Brighton and Hove	PIP in sexual health	4 years	Full time	Did not participate
10	Male	Kent	PIP in Diabetes	4 years	Full time	Did not participate
11	Female	Dudley	PIP in Hypertension	3.5 years	Full time	Did not participate
12	Female	Hampshire	PIP in Hypertension	4 years	Full time	10
13	Female	Milton Keynes	PIP in Diabetes	2.5 years	Full time	9

Patient questionnaire

The questionnaire was completed by 77 patients who attended consultations across seven distinct GP practices (**Table 2**). The documented duration of appointments spanned from 5 to 40 min, yielding a mean length of 17 min (SD = 7.5). Under half of the sample (47%, n = 36) received a single type of intervention or recommendation, and the overwhelming majority of these individuals (n = 33) indicated that this guidance pertained exclusively to medication.

Table 2. Patients' characteristics

Characteristic	N (N = 77)	%
Gender		
Male	33	42.9
Female	43	55.8
Prefer not to disclose	1	1.3
Age	Minimum = 40, Maximum = 85, Mean = 63.42, SD = 11.2	
	Median = 63 (IQR = 16)	
Health condition type for consultation		
Hypertension	36	46.7
Diabetes	15	19.4
Other or mixed conditions	26	33.7
Appointment duration		
Under 10 minutes	3	3.9
10–19 minutes	44	57.1
20–29 minutes	21	27.2
30–39 minutes	6	7.8
Over 40 minutes	3	3.9
Number of prior GP pharmacist consultations ***(note: 75 respondents answered this question, not 77)***		
None	16	21.3
One previous visit	14	18.6
Two visits	18	24
3–5 visits	16	21.3
6–10 visits	8	10.6
More than 10 visits	3	4
Type of services delivered by PIPs		
Medication management only	33	42.8
Medication plus lifestyle advice	16	20.7

Medication, lifestyle and disease management	15	19.5
Medication and disease management	3	3.9
Other services	10	13

Eight patients were excluded due to missing data.

PIPs' perception of their role and integration

The comprehensive themes and sub-themes generated through the thematic analysis are outlined in **Table 3.**

Table 3. Themes identified from PIPs during interviews

Main Theme	Sub-themes
Development of Pharmacist Independent Prescribers (PIPs) roles in general practice	• Direct patient care responsibilities• Administrative and non-clinical responsibilities
Facilitators and obstacles to integration within general practice settings	• Clarity of understanding and acknowledgment of the PIP role• Structured and informal training, learning, and professional development opportunities• Communication and interpersonal competencies of PIPs

Theme 1: emerging roles of PIPs in general practice

This theme encompasses the insights respondents shared about the specific duties they performed within the GP practice environment.

Patient-facing roles

Direct clinical responsibilities encompassed conducting health assessments and therapeutic reviews within dedicated patient clinics. Although telephone follow-up was the primary mode, the majority of consultations occurred face-to-face. Clinical consultations frequently prioritized structured medication reviews, highlighting participants' specialized proficiency in pharmaceutical care. Numerous respondents detailed extensive duties, including the diagnostic evaluation and therapeutic monitoring of acute and long-term illnesses, risk stratification, physical examinations, and clinical referrals to external healthcare practitioners.

"My clinical duties involve running patient clinics, which encompass reviewing medications and polypharmacy, as well as monitoring blood pressure and managing diabetes care" (PIP 10)

Non-patient-facing roles or administrative roles

Respondents also detailed their engagement in administrative and non-clinical duties within the general practice, predominantly focused on pharmaceutical management, including validating prescriptions and resolving medication-related inquiries. Furthermore, a small number of participants outlined broader operational leadership and managerial functions, which involved educating colleagues on pharmaceutical issues and participating in quality enhancement programs aimed at optimizing dispensing protocols or clinical tracking frameworks.

"I handle routine tasks such as reviewing and processing prescriptions, conducting clinical audits, executing optimization frameworks, managing cost-effective and community-efficient pharmaceuticals, and providing educational training to medical and nursing personnel" (PIP 10).

Nevertheless, the interview findings underscored that the breadth of clinical consultations managed by PIPs fluctuated according to the specific operational requirements of each GP surgery and the degree of task delegation within the wider multidisciplinary team, including physicians, nursing staff, and healthcare assistants.

Theme 2: barriers and facilitators to the integration of PIPs into general practice

The following sections delineate three primary elements that either supported or impeded the operational incorporation of PIPs into primary care settings:

Understanding and recognition of PIP role

Several respondents highlighted instances in which a deficient understanding of the PIP role among general practice teams led to prescribers being asked to make clinical judgments or assume duties outside their professional boundaries. This lack of role clarity was viewed as a significant threat to patient safety.

"As numerous patients present with multiple comorbidities and complex polypharmacy, the individual pharmacist must evaluate what they are personally comfortable prescribing. This situation can generate

friction; when general practitioners view the pharmacist solely as an independent prescriber, they might anticipate that the pharmacist will authorize a novel treatment requested by a secondary care hospital, even if that specific clinical domain falls outside the pharmacist's personal competence." (PIP 5)

Defining clear professional boundaries was likewise deemed crucial to ensure that PIPs and their respective employers maintained appropriate professional indemnity insurance coverage, thereby reassuring the clinical practice of the legality and safety of the duties performed.

"It is essential to constantly evaluate whether your clinical practice aligns with your defined scope and capabilities, ensuring your actions are safe and that your professional indemnity insurance fully protects your specific clinical activities." (PIP 11)

Concurrently, some respondents noted that certain general practitioners hesitated to transfer clinical duties, driven by apprehensions about disrupting continuous patient care.

"Physicians are often unwilling to transfer responsibility for a patient because they prefer delivering comprehensive, holistic care that addresses all medical conditions simultaneously. Consequently, many pharmacists encounter barriers stemming from this preference." (PIP 9)

Gradually, as the primary care team gained a deeper familiarity with the clinical capabilities of the PIPs, they delegated appropriate responsibilities, allowing the prescribers to apply their expertise effectively while mitigating the overall workload of the medical staff.

"It involves progressively establishing rapport, alleviating the operational burdens of the physicians, and demonstrating capability for specific tasks. Once the clinical team recognizes your competence, they allocate a greater volume of responsibilities to you." (PIP 11)

Furthermore, some participants noted that patients initially hesitated to schedule appointments with a PIP, primarily due to unfamiliarity with the scope of services these professionals offer.

"Introducing oneself as a pharmacist often leads patients to assume the role is identical to a community pharmacist operating inside the clinic, making it difficult for them to conceptualize the distinct functions of a general practice pharmacist. Certain service users remain confused about why they are assigned to a pharmacist rather than a physician, and show a preference for medical doctors. Establishing complete confidence in the pharmacist remains an ongoing hurdle, as trust is not uniformly present." (PIP 11)

However, following a clinical interaction, patients recognized the benefits of PIP-led appointments, highlighting the advantage of guidance from a skilled clinician and extended consultation time.

"Once a dialogue is established and patients appreciate my professional capability, clinical expertise, and the guidance provided, their response is highly positive. They express satisfaction, acquire new health insights, and perceive the role as an intermediary between a general practitioner and a nurse, due to the combination of clinical expertise and extended appointment times." (PIP 3).

Respondents emphasized that patient endorsement of PIPs was instrumental in facilitating their integration into the primary care environment, as it created expanded pathways for delivering patient-centric healthcare.

"While there are occasional patients who explicitly insist on consulting a medical doctor rather than a pharmacist, the consensus is that the majority of patients are amenable to seeing a pharmacist." (PIP 13)

Several individuals underscored the need for an integrated, multidisciplinary framework to support the assimilation of PIPs, highlighting the need for a structured division of patient management and coordination among diverse specialists within the clinic. Collaborative care models were viewed as a mechanism to optimize patient health outcomes.

"Multiple healthcare disciplines collaborate toward a shared objective, which is the optimization of patient outcomes. This model synthesizes diverse clinical methodologies into a cohesive strategy, enabling us to advance and achieve superior clinical results." (PIP 8)

Within this framework, institutional mechanisms such as multidisciplinary clinical and practice briefings were identified as beneficial for fostering the integration of PIPs. These collaborative forums offered PIPs a platform to highlight their specialized knowledge and professional acumen by actively participating in team-based case reviews.

"These forums enhance our understanding of broader clinical operations within the practice while allowing us to present our own perspectives, thereby fostering a genuine sense of team cohesion." (PIP 13)

Formal and informal training and development

Respondents who had undergone structured historical or concurrent formal education and professional

development tailored to their role as a PIP reported that this training helped them develop the essential knowledge and expertise needed to transition into their new positions and make meaningful contributions to the clinic, thereby facilitating their systemic integration.

"An organized curriculum was established... This provided me with a progressive onboarding experience, which was highly beneficial because I was not abruptly assigned to clinical sessions. Instead, I could analyze the operational framework externally... reviewing processes from a distance before active clinical engagement... facilitated by the Centre for Pharmacy Postgraduate Education [CPPE] Clinical Pharmacists in General Practice Education pathway." (PIP 2)

Conversely, other respondents indicated an absence of organized training frameworks and highlighted the critical requirement for continuous educational opportunities:

"The challenge resides in the current lack of an organized training framework, which is undoubtedly essential. There is a manifest requirement for it... Consequently, newly appointed pharmacists who are not directly employed by the general practice lack systematic training; instead, their professional development relies purely on experiential learning and incremental skill acquisition... Establishing a standardized portfolio or educational pathway would undeniably bolster professional competence and guarantee safer clinical practice." (PIP 11)

Among respondents who had completed formal PIP training programs, a subset noted that these curricula did not fully equip them with the comprehensive skill set needed in a primary care environment, particularly when managing consultations for patients with complex multimorbidities.

"Numerous clinical tasks connected to blood pressure management could be seamlessly executed if pharmacists possessed more advanced physical and clinical evaluation training... This deficiency acts as an obstacle because, as pharmacists, we frequently lack these specific clinical capabilities." (PIP 6)

Respondents emphasized that access to unambiguous national clinical guidelines was vital for executing their duties safely and effectively, as well as for demonstrating their clinical utility to the wider practice:

"I am confident that clinical contributions are valuable provided they remain evidence-based and contemporary. It centers entirely on delivering evidence-based care, which dictates my consistent reliance on the most recent national standards and NICE [the National Institute for Health and Care Excellence] guidelines." (PIP 2)

Independent study, including reviewing relevant literature, was acknowledged as useful but was frequently characterized as labor-intensive and challenging.

"Without appropriate training, an individual is essentially left to decipher complex clinical protocols independently... Autodidactic learning demands significantly more time to master new concepts." (PIP 11)

Furthermore, respondents stressed that appropriate oversight and guidance from the practice's general practitioners and other clinical peers were exceptionally critical.

"Evaluative feedback and professional supervision are highly significant to ensure that your clinical actions are correct and align with the operational expectations of the practice." (PIP 10)

Several respondents noted structured onboarding or training protocols within their practices that facilitated the acquisition of the competencies necessary for their roles. These mechanisms included receiving guidance from senior colleagues, shadowing an experienced practice pharmacist, or working in an educational environment that supported advancement toward Advanced Clinical Practice (ACP) status.

"Access to a mentor was highly beneficial, and observing clinical sessions conducted by other colleagues proved similarly advantageous for evaluating and refining personal consultation techniques." (PIP 12)

"I believe my professional integration was considerably more seamless because the primary surgery functions as an accredited training clinic." (PIP 6)

Interpersonal skills of PIP

Beyond specialized clinical expertise, respondents underscored that proficient interpersonal skills—such as verbal communication, collaboration, and relationship-building—were likewise vital to support the integration of PIPs into primary care environments.

"Investing effort to inquire about peers, family, and professional dynamics allows one to establish themselves as an approachable colleague before initiating advanced clinical tasks. This approach enables the proactive development of interpersonal connections instead of attempting to execute operational adjustments immediately upon arrival." (PIP 1)

"Interpersonal attributes are highly critical since they are also utilized to establish a strong rapport with patients." (PIP 1)

Engaging in casual dialogue or delivering structured presentations to practice personnel to increase awareness of their clinical capabilities were identified as factors that facilitated integration.

"It involves communicating not only with physicians but also with administrative staff, healthcare assistants, nursing personnel, social prescribers, and the broader team, ensuring mutual understanding of capabilities and fostering collaborative teamwork." (PIP 3)

"It heavily depends on maintaining a visible presence and actively embedding oneself in all operational workflows. Rather than confining myself to my desk, I make an effort to interact with the nursing team, consult with the physicians, attend clinical briefings, deliver presentations during these meetings, and participate dynamically whenever possible." (PIP 3)

Patients' perception of their most recent consultation with the PIPs

Patients expressed exceptionally high satisfaction across nearly all facets of their consultations with PIPs, except for the frequency of appointments with prescribers (**Table 4**).

Table 4. Patients' satisfaction with aspects of appointments with PIPs

Statement	Not Satisfied/Not Applicable (%)	Neutral (%)	Strongly/Very Satisfied (%)
Perceived benefit of attending a PIP consultation at the GP practice	0 (0%)	5 (6.5%)	72 (93.5%)
Level of support provided by the PIP	0 (0%)	4 (5.2%)	73 (94.8%)
Adequacy of time spent with the PIP during the consultation	0 (0%)	3 (3.9%)	74 (96.1%)
Perceived effectiveness of the PIP in improving the patient's condition	0 (0%)	6 (7.8%)	71 (92.2%)
Overall satisfaction with the visit	0 (0%)	5 (6.5%)	72 (93.5%)
PIP's awareness and understanding of the patient's perspective	0 (0%)	3 (3.9%)	74 (96.1%)
Frequency of appointments with PIPs at the GP practice	6 (7.8%)	25 (32.5%)	46 (59.8%)

VS very satisfied, S satisfied, NS not satisfied, NAS not at all satisfied, GP general practice, PIPs pharmacist independent prescribers

The vast majority of patients expressed confidence in the recommendations provided by the PIP (97%, n = 75) and deemed a subsequent consultation with a general practitioner unnecessary following their visit (75%, n = 58). Conversely, 14% of patients (n = 11) perceived a continuing necessity to consult a general practitioner after their appointment with the PIP.

A total of 62 qualitative open-text responses from patients regarding services delivered by PIPs within primary care were collected. **Table 5** outlines the primary themes derived from these qualitative comments, along with illustrative supporting quotes.

Table 5. Identified benefits of services provided by PIPs with supporting quotations

Themes	Supporting quotations
Accessibility and convenience	"Reduced waiting time for appointments" (Patient no. 47)"Easy access to NHS services" (Patient no. 22)
Specialist knowledge and expertise	"Pharmacists seem to have greater knowledge of medicines compared with GPs" (Patient no. 50)"Reassurance regarding long-term medication use, with sufficient time to discuss medication-related concerns" (Patient no. 46)
Longer and more in-depth consultations	"Unhurried and thorough discussion about the condition" (Patient no. 3)"More time available with a healthcare professional" (Patient no. 48)"They have adequate time to explain different medications and their side effects" (Patient no. 50)
Attentiveness and helpful care	"She was very supportive and provided all the essential information required" (Patient no. 44)"Shows genuine concern for the patient as an individual" (Patient no. 27)

Reducing workload and pressure on services	"Eliminates the need to see a GP for non-urgent issues" (Patient no. 23)"Helps save GP time" (Patient no. 48)

This investigation examined the viewpoints of pharmacist independent prescribers (PIPs) concerning their operational integration within general practice (GP) environments, alongside evaluating patient satisfaction regarding the care delivered. The majority of PIPs reported progressive improvement in their workplace integration and felt adequately supported by their professional colleagues. The primary obstacles to the successful deployment of the PIP workforce within general practices were an insufficient understanding of the pharmacist's role within multidisciplinary teams and resistance to organizational change from existing clinical staff. Furthermore, because standardized educational pathways for pharmacists transitioning into general practice are currently lacking, shortfalls in both clinical competency and the interpersonal attributes necessary for primary care environments could also hinder effective integration. Conversely, patient perceptions of PIP-led appointments within general practices were overwhelmingly favorable. Nearly all surveyed patients expressed confidence in the therapeutic recommendations made by the PIPs, although a minority noted a continuing requirement to consult a general practitioner following their appointment.

Certain insights from this study align with contemporary literature on the systemic barriers PIPs encounter during integration into primary care. The current data suggest that the absence of a distinct, well-defined role for PIPs in general practice frequently restricts their clinical scope, limits opportunities to engage in direct patient-facing duties, and provokes resistance from other clinical personnel regarding their professional functions. Comparable challenges have been documented in previous investigations exploring general practice pharmacists in England [17, 20, 25], Australia [25, 38, 39], New Zealand [40], and Canada [41, 42]. Additionally, a qualitative analysis evaluating a localized training framework identified parallel problems concerning role clarity for pharmacists in English general practices [21]. Prior research indicates that utilizing senior clinical pharmacists within the practice to provide mentorship and clinical supervision to newly recruited pharmacists can mitigate role ambiguity and support the development of a distinct professional identity [26, 27]. A study by Duncan *et al.* [43], which explored the barriers and facilitators of collaborative practice between general practitioners and pharmacists in the UK, found that physicians with prior experience working alongside a practice pharmacist demonstrated a greater appreciation of the practice pharmacist's clinical expertise and knowledge than those without such experience. Furthermore, general practice pharmacists reported that their clinical skills were utilized more effectively when a strong professional relationship existed with a medical practitioner [43].

The present study reinforces previous evidence that PIPs frequently encounter difficulties managing clinical issues or queries outside their immediate area of clinical competence [17, 20, 44, 45]. In the UK, pharmacist independent prescribers are generally trained within a specialized therapeutic domain. In contrast, their duties in a general practice setting tend to be broad and generalist, thereby constraining their confidence when prescribing outside their specific competencies. However, our findings illustrate that PIPs can successfully broaden their clinical capabilities over time, provided they are granted opportunities to assume greater responsibilities under the structured mentorship and supervision of senior colleagues [27, 46, 47]. This highlights a distinct need for structured, experiential training pathways within general practice to expose PIPs to a broader range of clinical scenarios [21].

Patients participating in this study expressed high satisfaction with the care delivered by PIPs, echoing prior literature showing that individuals with chronic illnesses demonstrate high levels of acceptance of care managed by non-medical independent prescribers [48-50]. Conversely, diverging from earlier research [51, 52], this study's findings reveal that some patients favored more frequent PIP appointments within general practices. Respondents appreciated having extended time during their consultations to review their medical conditions, pharmaceutical treatments, and general concerns. Prior evidence similarly indicates that patients routinely experience longer consultation durations with non-medical prescribers, an attribute generally perceived favorably by service users [49, 53-55]. In contrast, an investigation by Gerard *et al.* [56] found that appointment length did not affect patient satisfaction with PIPs in primary care, whereas variables related to patient–professional communication significantly influenced the management of their medical conditions.

To the authors' knowledge, this is the inaugural mixed-methods study in England to investigate both the operational implementation of PIP integration in general practice and patients' perspectives on these consultations. The interview sample size aligns with established qualitative methodologies [57], and the number of sessions conducted was sufficient to achieve data saturation [58]. However, the questionnaire sample was relatively small, as face-to-face consultations in general practices were suspended due to the COVID-19 pandemic. Additionally, because the PIPs themselves distributed the questionnaires to their patients, an element of recruitment or response bias may have been introduced. To mitigate this, the participant information sheet explicitly guaranteed anonymity and confidentiality, emphasizing that the research aimed to evaluate the services delivered rather than audit the performance of individual prescribers.

Given the reliance on convenience sampling, the authors acknowledge the potential influence of self-report, social desirability, and recall biases, as well as researcher bias during data collection, analysis, and interpretation. Nevertheless, the study sample encompassed PIPs with diverse professional experience drawn from geographically varied general practice environments across England. Similarly, patients were recruited from multiple clinics across different regions, thereby potentially enhancing the generalizability of these findings. Furthermore, reflexivity practices were utilized to minimize researcher bias during both the interviewing and data analysis phases.

Conclusion

The insights generated from this investigation indicate that developing a comprehensive understanding of the PIP role, alongside recognizing the specific facilitators and barriers within primary care, is a fundamental prerequisite for successful workplace integration. Further empirical research is required to optimize the educational models, training frameworks, and integration pathways for PIPs in general practice, ensuring they possess the necessary competence and confidence to execute expanding clinical roles.

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