

# General practitioners' perceptions of pharmacists working in general practice: a qualitative interview study

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**Background:** Pharmacists are being increasingly employed as part of general practice teams globally, and their input has been associated with several clinical and economic benefits. However, there is a paucity of research focussing on general practitioners' (GPs') perceptions of pharmacist integration into practices in countries where this novel role for pharmacists is yet to become commonplace.

**Objective:** To explore GPs' perceptions of integrating pharmacists into general practices and to identify the behavioural determinants of GPs integrating pharmacists into practices.

**Methods:** Semistructured interviews were conducted with GPs practising in Ireland, who were sampled using a combination of purposive, convenience, and snowball sampling. Interviews were audio-recorded and transcribed *verbatim*, which then were analysed using conventional content analysis and directed content analysis employing the Theoretical Domains Framework (TDF).

**Results:** Seventeen GPs were interviewed between November 2021 and February 2022. Seven TDF domains were identified as predominant in influencing GPs' perceptions of pharmacist integration into general practices. These perceptions were mostly positive, especially regarding patient outcomes, cost savings, and improving access to care. However, there were concerns about funding the role, affecting others' workloads, and pharmacists' training needs to work in practices.

**Conclusion:** This study's theory-informed insight provides a deeper understanding of GPs' perceptions of pharmacists working in general practice and behaviours which can be targeted to help optimize integration. These findings should be utilized in future service development to preempt and address GPs' concerns ahead of pharmacist integration, as well as to inform the development of general practice-based pharmacist roles going forward.

## Lay summary

This interview study focusses on, for the first time, general practitioners' (GPs') perceptions of pharmacist integration into general practices outside of a private practice setting. Pharmacists working in general practices have demonstrated several benefits for patients, GPs, practices, and for wider society. However, pharmacist roles in general practices have thus far been confined to a small number of countries; little is known about the perceptions of GPs who have not previously worked alongside a pharmacist in general practice regarding pharmacist integration in this setting. GPs interviewed in this study were broadly optimistic about aspects of pharmacists working in practices and potential outputs. However, GPs had concerns about pharmacists' impact on others' roles and workloads, funding, and training pharmacists to perform roles in this setting. This study therefore provides a useful insight into GPs' perceptions on the subject so that their views, concerns, and ideas can be anticipated and taken on board in advance of trying to integrate pharmacists into practices.

**Key words:** general practice, general practitioners, pharmacists, primary healthcare, qualitative research

## Background

Advances in public health and modern medicine have enabled patients with chronic diseases to live longer, thus leading to a growing proportion of older people with associated multimorbidity and subsequent polypharmacy.<sup>1</sup> Management of chronic disease in multimorbid older adults has increasingly been performed in general practice where general practitioners (GPs) are tasked with coordinating prescribing from several medical specialists.<sup>2</sup> The application of disease-specific guidelines by specialists to multimorbid patients without holistic consideration may lead to potentially inappropriate prescribing, therefore increasing healthcare costs and pressures on GPs at a time

when recruitment and retention of general practice staff is problematic.<sup>3,4</sup>

In response to growing pressures on GPs and to aid in managing complex medication regimens and encourage more cost-effective prescribing, pharmacists have been integrated into general practice in several countries, where they have demonstrated their value by performing numerous roles including medication reviews, medication reconciliation, managing repeat prescriptions, and providing medicines information.<sup>5–8</sup> Regarding clinical outcomes, pharmacists' interventions in general practice have been associated with significant improvements in blood pressure, glycosylated haemoglobin, cholesterol, and cardiovascular risk.<sup>9</sup> A recent

## Key messages

- GPs were primarily positive about pharmacist integration into practices.
- GPs predict that pharmacists will improve patient outcomes and practice capacity.
- Pharmacist presence will encourage evidence-based and cost-effective prescribing.
- GPs were concerned about how pharmacist roles will be funded.
- GPs held mixed views on pharmacists' potential impact on workloads in practices.
- GPs felt pharmacists may need additional training to work in practices.

systematic review looking at integrating pharmacists into general practice showed decreased patient appointments with GPs and emergency department visits, yet increased overall primary care use due to patient appointments with pharmacists.<sup>10</sup>

A recent qualitative evidence synthesis (QES) describes GPs' views on the matter,<sup>11</sup> which highlighted that only 3 published studies address GPs' views regarding integrating pharmacists into practices prior to having worked alongside a pharmacist<sup>12–14</sup>; two of these investigated GPs' views amongst patients, pharmacists, and practice managers,<sup>13,14</sup> and the other only interviewed GPs working in private practices.<sup>12</sup> Furthermore, that QES deemed only 12/54 findings to be of “high confidence” when assessed using the GRADE CERQual (Confidence in the Evidence from Reviews of Qualitative research) approach, emphasizing the need to enhance data adequacy in this area of research. To date, no study has focussed solely on exploring GPs' perceptions of pharmacists working in general practice outside of private practices, nor has any study used a theory-informed approach. The Theoretical Domains Framework (TDF) is a framework developed to identify influences on health professionals' behaviour related to the implementation of evidence-based recommendations and has been used previously to identify the behavioural determinants of pharmacist integration into other clinical settings.<sup>15,16</sup> The paucity of literature in this area is important to address, because having a pharmacist in general practice is a new concept in many countries, with studies of the role thus far limited to a handful of countries, but mainly Canada, the United Kingdom, and the United States.<sup>9</sup> Exploring GPs' perceptions is crucial to develop new models which incorporate pharmacists into general practice teams, thus increasing the likelihood of granting future patients better use of a healthcare professional that has been shown to enhance patient outcomes, improve access to care, and provide economic benefits.<sup>10,13,17,18</sup> Thus, the aim of this study was firstly to explore GPs' perceptions towards pharmacists working in general practices and then to analyse these perceptions through the lens of the TDF to identify the behavioural determinants of GPs integrating pharmacists into practices.

## Methods

### Study context

The study was conducted with GPs working in the Irish general practice setting, the characteristics of which are described in [Table 1](#).

### Participant sampling

A combination of purposive, convenience, and snowball sampling was used to recruit GPs. Professional contacts of 2 GP

research team members (TF and EW) were sampled purposively using a standardized email with attached information leaflet and consent form, to determine interest in being interviewed. The standardized email, information leaflet, and consent form were also circulated to GP trainers on the local GP Training Programme. Interviewed GPs were asked to identify GPs who would be interested in partaking (snowball sampling). A purposive sampling strategy ([Table 2](#)) was used to achieve maximum variation with respect to participants' characteristics. In this strategy, gender and years practising as a GP were taken into account as they have been previously suggested to affect GPs' views of integrating pharmacists into practices,<sup>23,24</sup> whilst all other factors were identified through consensus discussion amongst the research team. GPs were not eligible to participate if they had previously worked with a pharmacist in general practice or if they had previously trained as a pharmacist. The Guest et al. method was used to determine sample size; base size was the number of interviews required to complete the sampling strategy outlined in [Table 2](#), run length was 2, and the new information threshold was  $\leq 5\%$ .<sup>25</sup>

### Data collection

Semistructured interviews were conducted by EH using a topic guide ([Supplementary File 1](#)) that was iteratively developed based on the TDF (mapping shown in [Supplementary File 2](#)), the aforementioned recent QES in this area, and discussions amongst the research team.<sup>11,16</sup> The topic guide was then piloted with 2 GPs working in separate practices not affiliated with the study team. GPs who agreed to be interviewed returned signed consent forms and verbal consent was also acquired before interviews began. Thereafter, a telephone or video conference interview using Microsoft Teams was arranged with GPs. GP demographics were attained using a data collection form immediately prior to interviews commencing. Interviews were audio-recorded, transcribed *verbatim*, and thereafter deidentified.

### Data analysis

All 17 transcripts were uploaded to NVivo 12 software to facilitate analysis. Phase 1 of analysis involved transcripts being read and reread to ensure researcher familiarity. Phase 2 involved conventional content analysis by EH, which comprised open coding to inductively create nonhierarchical codes and thereafter categorizing these to generate initial themes.<sup>27</sup> Phase 3 consisted of a directed content analysis approach by EH, whereby the TDF constructs and domains acted as predetermined codes.<sup>27</sup> To better ensure reliability of coding, a second researcher (CH) independently identified themes and TDF domains from a sample of 6 transcripts. A random sample of 10 of the 17 coded transcripts

**Table 1.** Structure of general practice in Ireland.

- Most GPs work in urban or mixed urban and rural areas, with fewer GPs choosing to work in more remote areas of Ireland.<sup>19</sup>
- The majority of GPs in Ireland as of 2015 (82%) work in group practices (i.e. practices with  $\geq 2$  GPs), with fewer GPs choosing to work as single-handed GPs.<sup>19</sup>
- Ireland has seen an increase in the number of GPs working in primary care centres; as of 2015, approximately 10% of GPs work in primary care centres.<sup>1</sup> These are purpose-built buildings that house several health and social care services from 1 site (e.g. GP, public health nurse, occupational therapy, physiotherapy, and a range of other services).<sup>20</sup>
- Pharmacists do not routinely work in general practices in Ireland, with the exception of a handful of practices who employ a pharmacist privately (true number unknown).
- GPs can be divided into 2 groups in Ireland: those in private practice alone, and those in private practice who are also participating in the GMS scheme. As of 2015, 89% of GPs were participating in the GMS scheme.<sup>19</sup>
- The GMS scheme is a means/income-tested state-run programme that provides healthcare to approximately one-third of the population of Ireland.<sup>21</sup> Those eligible for the GMS scheme are issued a medical card or a GP visit card by the state.
- All children under 6 years of age living in Ireland are eligible for a GP visit card.
- GMS-eligible patients are entitled to free GP consultations, while the remainder of the population—who are considered “private patients”—must pay the full cost of each consultation.
- GMS GPs are remunerated by the state through the Primary Care Reimbursement Services (PCRS) in several ways<sup>22</sup>:
  - *Capitation*—payments are received monthly from the PCRS based on the number of patients the practice cares for and their age profile.
  - *Special type consultations*—are claimed by GPs provided to patients that are not included in the capitation agreement with the PCRS (e.g. out-of-hours services).
  - *Allowances and subsidies*—e.g. locum payment contributions or indemnity allowance.
- GPs can also claim additional reimbursement through the Structured Chronic Disease Prevention & Management Programme, which has 3 components<sup>22</sup>:
  - *Opportunistic Case Finding (OCF)*—aims to identify those with an undiagnosed chronic disease or at high risk of developing a chronic disease.
  - *Prevention Programme (PP)*—focuses on preventing disease in those at high risk of cardiovascular disease and/or diabetes.
  - *Chronic Disease Management (CDM)*—this programme consists of 2 reviews per year for patients with certain chronic disease (e.g. atrial fibrillation and diabetes).

**Table 2.** GP demographics and sampling strategy.

GP characteristic		Number of GPs interviewed	Minimum number of GPs required in sampling strategy
Gender	Male	7	4
	Female	10	4
Years of postqualification experience as a GP	0–9	2	2
	10–19	10	2
	$\geq 20$	5	2
Practice location	City centre	3	3
	Urban suburb	6	3
	Rural/semirural	8	3
Number of GPs working in the practice	1	1	1
	2–5	11	3
	$\geq 6$	5	3
Part of primary care centre <sup>a</sup>	Yes	6	4
	No	11	4
	Disadvantaged	3	2
Level of deprivation <sup>b</sup> of electoral division around practice	Marginally below average	6	2
	Marginally above average	6	2
	Affluent	2	2

<sup>a</sup>Primary care centre: Primary care centres provide primary care services from 1 site. These services are all the health and social care services that are available in the community, outside of hospital (e.g. GP, public health nurse, home help, occupational therapy, physiotherapy, and a range of other services).<sup>20</sup>

<sup>b</sup>Level of deprivation defined according to pobal i.e. level of deprivation indices 2016 by Electoral division.<sup>26</sup>

were reviewed by 2 GP research team members (EW and TF) to help minimize any potential positivist bias from the pharmacist researchers and to ensure predominant domains

identified truly reflected the main issues raised by GPs. Three factors were considered during the consensus discussion when identifying predominant TDF domains: (i) frequency

Table 3. Illustrative quotations.

Conventional theme	Quotations
1. Environmental context and resources	
1.1 Current pressures in primary care	"So, you need to look at things like 25% of Irish GPs are over the age of 60, so there are a significant number of retirements which are going to make the manpower issue worse." [GP 11]
1.2 Resources required to support pharmacist integration	"...but initially it would need to be HSE <sup>a</sup> -funded, ehm... you know once it became if it became the norm and GPs could see the value of it to the practice then I would say that they would be happy to part-fund it and it would have to HSE-funded initially." [GP 16]
1.3 Role logistics will depend on individual practice environments	"...do you want a full time or part time. I want enough of the resource to, to do the job right and if that's full time, happy days." [GP 10]
2. Social professional role and identity	
2.1 Optimizing pharmacotherapy and service provision in general practice	"I would love someone to do a drug review with me and see am I doing this right or am I doing this wrong." [GP 17]
2.2 Role definition to minimize overlap with others' roles	"So, I think it's really important that both...that all the health professionals have a really clear understanding of where everybody's boundaries and limitations are." [GP 14]
2.3 Patient cohorts where pharmacists are particularly needed	"I mean the demographics of my practice in particular would be an older practice. So, with multiple comorbidities, polypharmacy and those patients tend to be quite complicated and I think definitely maybe you know having input, having regular or scheduled input from pharmacy would be beneficial." [GP 4]
3. Social influences	
3.1 Becoming part of the team and supporting each other	"I don't want somebody who dials in remotely and who I pay you know a contract for services. I want somebody who is part of the team." [GP 10]
3.2 Existing societal norms and interprofessional tensions	"I think that obviously traditionally in Ireland when we do general practice its very much GP, practice nurse, and that's it." [GP 5]
3.3 Modelling the role	"I think maybe like the way the diabetes nurse specialist works. So she comes to our practice every 3 months and kind of does clinics, like maybe a more involved version of that." [GP 2]
4. Beliefs about consequences	
4.1 Consequences for GPs	"...more than anything else I would not want this pharmacist to be generating additional work for me. You know I don't want them doing a medication review and leaving me a list of queries ehm...you know I really want it to be sorted." [GP 8]
4.2 Consequences for patients and wider society	"...again, time consuming but you know it might keep patients out of hospital, it might prevent them getting infective exacerbations of their COPD, so I think that's an area that there's lots of work that could be done." [GP 3]
4.3 Consequences for the practice	"...I think that would make the logistics of ehm... the practice management a whole lot easier, well a whole lot more streamlined I suppose." [GP 7]
4.4 Consequences for community pharmacists	"I do appreciate from a retail pharmacist that actually this is not good news because actually if you, if you do, do it well and you reduce the number of medicines and you use the cheaper versions actually that's reducing their turnover and so you know no one else in the, in the financial world would be expected to deliver high-quality care and be penalised financially as a result which is what would happen for a pharmacist." [GP 8]
5. Beliefs about capabilities	
5.1 Beliefs about GPs' capabilities	"...with the best will in the word, there are mistakes that are made and there are things that we could do better." [GP 9]
5.2 Beliefs about pharmacists' capabilities	"...once a person is kind of motivated and once they're an individual who gets into pharmacy school and who gets out the other end, is by definition they're motivated, they're highly educated." [GP 7]
6. Skills	
6.1 Further training required	"...there's a degree of training would be required above and beyond possibly normal pharmacy to, to actually go down that road. Just as there is for nurse practitioners to go down that road." [GP 1]
6.2 Making the most of pharmacists' existing skillsets	"But if you're in general practice you know are they, I suppose you're always trying to get people working to their skillsets the highest level of their skillset and not wasting their time with maybe jobs that someone else with a lower skillset could do." [GP 2]
6.3 Additional skills requirements	"...good teamwork anyway definitely because you have to be able to you know get on well with everybody in the practice, so the admin staff, the nursing staff... I suppose somebody who would be less paternalistic with patients...good sort of empathetic patient care and communication." [GP 5]
7. Knowledge	
7.1 GP awareness of pharmacists' knowledge of medications and training	"I'd often put this on my prescriptions: pharmacists are the medication experts. If you have any questions, please ask your pharmacist. By the time a pharmacist qualifies, they have five years of medicines under their belt and pharmacists' knowledge is encyclopaedic." [GP 8]
7.2 Awareness of the role of pharmacists in general practice	"They'd be like who are you? Are you a community pharmacist, do you dispense my medicines? I often find that kind of a thing will baffle the patient a bit." [GP 12]

<sup>a</sup>Health Service Executive.

of beliefs in domains (Supplementary File 3), (ii) presence of conflicting beliefs, and (iii) perceived strength of the beliefs impacting the integration of pharmacists into practices.<sup>28</sup> Finally, each of the conventionally developed themes and their antecedent codes were categorized under one of the predominant TDF domains that best reflected the conventional theme and its codes.

## Reporting

This study was reported in congruence with the COREQ (Consolidated Criteria for Reporting Qualitative Studies) guidelines (Supplementary File 4).<sup>29</sup>

## Results

A total of 17 GPs were interviewed between November 2021 and February 2022, all of whom were practising in County Cork in Ireland, with participant details shown in Table 2. Other participant details included (i) age in years: median (range) 46 (35–66), and (ii) percentage of GPs' patients that are General Medical Services (GMS) patients: median (range) 70 (35–90). The average interview length was 30 min (range: 17–41 min). The coding frequency of TDF domains is shown in Supplementary File 3. Seven TDF domains were identified as predominant in influencing GPs' attitudes towards pharmacists working in general practice. These predominant TDF domains are shown below with conventional themes underneath, and are supported by illustrative quotations in Table 3, with supplementary quotations in Supplementary File 5. Due to the multidimensionality of GPs' quotations, it should be noted some quotations may map to more than 1 TDF domain.

### Environmental context and resources

**Current pressures in primary care** GPs said pharmacists may help to improve increasingly difficult working conditions caused by a decreasing GP workforce, time constraints, increasing multimorbidity and polypharmacy, and increasing complexity of medications. The primary–secondary care interface was highlighted as a potentially dangerous area, where errors are likely to occur on discharge prescriptions. Inequalities between public and private patients in terms of access to care were highlighted, with public patients reportedly having better access to primary care services. Some mentioned feeling financial pressure, as current GP funding consists of fees for services which are paid by patients and the government.

**Resources required to support pharmacist integration** All GPs cited concerns regarding funding the role, perceiving that government funding would be essential to widely establish the role, and that the role may be more cost-effective for the government in larger practices. Space to accommodate pharmacists was thought to be a key barrier to their integration, albeit somewhat less of an issue for GPs practising in larger primary care centres. Other resources identified as important for integrating pharmacists included information technology (IT), administrative support, access to clinical notes, a clear clinical governance structure, having a designated GP or pharmacist mentor, and professional indemnity.

**Role logistics will depend on individual practice environments** GPs were unclear whether a part-time or a full-time pharmacist role would be best. GPs in larger practices considered a full-time role more suitable. GPs in smaller practices considered a part-time role more feasible or suggested pharmacists possibly being shared between practices, and tended to suggest the potential for a pharmacist to log in remotely; conversely, GPs who favoured full-time roles stressed the importance of the pharmacist's physical presence on site to ensure accessibility.

### Social professional role and identity

**Optimizing pharmacotherapy and service provision in general practice** Potential roles for pharmacists centred heavily around medicines optimization; the most frequently suggested activities for pharmacists to perform included: medication review, medication reconciliation, and prescribing (including involvement in repeat prescribing). Less frequently cited activities suggested to optimize medication use included: device demonstration (e.g. inhalers and injections), formulary development, antimicrobial stewardship, audits, and providing medicines information. Notably, several GPs suggested pharmacist involvement in monitoring high-risk medications like methotrexate and lithium. GPs also mentioned that pharmacists could become involved in other roles in practices, such as advising on managing minor illnesses, vaccinations, health promotion activities like smoking cessation, and clinical measurement (e.g. blood pressure checks).

**Role definition to minimize overlap with others' roles** The importance of a well-defined role was emphasized to minimize unnecessary overlap with others' roles and to ensure the role was understood and utilized to its full potential by all stakeholders. Defining the role was also deemed important to prevent confusion amongst patients, who may traditionally think pharmacists' principal role in primary care is to dispense medications. While role definition is important, some GPs also noted roles for pharmacists may evolve over time.

**Patient cohorts where pharmacists are particularly needed** Some GPs felt pharmacists may be useful in managing complex patients, giving the examples of older adults or those with cardiac and diabetic issues. GPs stated this was due to the complexity of their pharmacotherapy, changing guidelines, and growing numbers of medications. GPs also said pharmacists may be useful in supporting them when it comes to having difficult conversations with patients (e.g. about stopping/tapering medications causing dependence).

### Social influences

**Becoming part of the team and supporting each other** GPs thought it would not be too difficult to integrate pharmacists given the movement towards multidisciplinary teams in primary care. Pharmacists' ability to work as part of a team was perceived as crucial to encourage buy-in to the role from other staff. Pharmacists in practices may create a sense of support and reassurance when GPs are prescribing and would provide an additional safety net. This was evidenced by highlighting the support they get from community pharmacists, but GPs said support would be greater from pharmacists in practices. GPs felt they could mentor and

support pharmacists introduced to their practice. It was suggested to have a support network for all pharmacists and GPs with pharmacists in practices to avoid having to design and set up a service anew each time.

**Existing societal norms and interprofessional tensions** Interviewees explained patients often do not like change and traditionally would see the general practice team as that of the GP and the practice nurse, and may be resistant to introducing a pharmacist. GPs mentioned interprofessional tensions, that may, for example, stem from pharmacists beginning vaccination provision in Ireland and the associated reduction in GP reimbursement. It was noted that some GPs may feel threatened by the expansion of pharmacists' roles, especially regarding the ability to prescribe. Interviewees alluded to poor interdisciplinary relationships that some GPs have with community pharmacists, noting some were not receptive to pharmacist suggestions regarding their prescribing.

**Modelling the role** GPs compared pharmacists in practices with nurse roles, with many distinctively noting the diabetes nurse specialist as a good exemplar for engaging with general practices; it was proposed that a similar logistical setup would work well, whereby a pharmacist provided specialist pharmaceutical care reviews and advice to several practices. GPs also said the Irish health service may become more like other countries' health services where pharmacists would be more integrated into general practice teams and ability to pay to access services would be less of an issue, which GPs felt is a barrier to providing optimal care currently.

### Beliefs about consequences

**Consequences for GPs** GPs believed integrating pharmacists into practices would make their prescribing more evidence based. GPs were less clear about the potential impact of pharmacists on their workload and were concerned that pharmacists may increase their workload where they create additional actionable tasks for GPs. However, although more work may be created, GPs felt there would be merit to doing it, as it would likely enhance patient safety and encourage greater analysis of their prescribing decisions. GPs also said pharmacists may improve their sense of job satisfaction, due to a reduction in medication-focussed duties. To improve uptake of pharmacist integration, it would be useful to disseminate the evidence base and potential outcomes of having pharmacists in practices.

**Consequences for patients and wider society** Interviewees cited pharmacists' potential to encourage safer prescribing and reduce medication errors, as well as encouraging more financially prudent prescribing—therefore reducing patient and government spend on medications. Furthermore, interviewees believed pharmacists may improve patients' medication adherence, along with enhancing their clinical outcomes—including the reduction of unnecessary polypharmacy, adverse drug reactions, and hospitalizations.

**Consequences for the practice** GPs felt there is potential for pharmacists to improve practice efficiency. Pharmacists may decrease practice nurses' workload, but may need more administrative support to function in practices. Additional administrative support required may be counterbalanced

by pharmacists triaging phone queries, thereby freeing up administrative staff time to support pharmacists in practices.

**Consequences for community pharmacists** Interviewees mentioned that community pharmacists may be negatively impacted financially; if medications were rationalized by a pharmacist in general practice, resulting in fewer prescribed medications, then community pharmacists would receive less dispensing fees.

### Beliefs about capabilities

**Beliefs about GPs' capabilities** GPs highlighted their own limitations, raising concerns about their ability to improve current prescribing in general practice, particularly regarding antibiotic and benzodiazepine use. Similarly, GPs said despite their best intentions and capabilities, they can make errors and having a practice-based pharmacist may help to reduce these errors.

**Beliefs about pharmacists' capabilities** GPs attested to pharmacists' competence, citing previous experiences of working with pharmacists, and said their views on pharmacists' ability to prescribe were influenced by their experiences with other nonmedical prescribers. Some GPs mentioned where they felt there was a limited role for pharmacists; examples included diagnostics, complex multimorbid patients, acute emergency care, and complex psychiatry. For pharmacists to work in general practice, interviewees stated they must be able to cope with uncertainty, and be proactive in their roles, ideally not waiting for GPs to provide or organize work for them.

### Skills

**Further training required** GPs debated whether pharmacists needed additional training to work in general practices. Where GPs felt additional training was required, they gave examples such as internships in general practices during pharmacists' undergraduate training, software training, and further postgraduate education for pharmacists. Interestingly, some interviewees said GPs may need additional training to work with pharmacists.

**Making the most of pharmacists' existing skillsets** Despite some GPs wanting additional training for pharmacists, many felt pharmacists were already highly skilled, and these skills need to be fully utilized. GPs said pharmacists should practise as generalists rather than specialists, and therefore need to be skilled in managing a variety of disease states. Of note, some GPs expressed a preference for pharmacists to have hospital experience.

**Additional skills requirements** GPs mentioned interpersonal and communication skills as important for establishing trust with patients and for managing relationships with others on primary care teams. Some GPs said they felt it was more important for pharmacists to come equipped with interpersonal skills above clinical skills or knowledge because deficiencies in clinical skills/knowledge could be more easily addressed through further training. GPs also expressed a preference for pharmacists to be assertive in their communication.

## Knowledge

**GP awareness of pharmacists' knowledge of medications and training** GPs said pharmacists possess extensive knowledge of medications, including interactions, monitoring, and cost. GPs felt their own knowledge of medications was less extensive, citing limited training on pharmacology during their undergraduate degrees. Although clear on pharmacists' knowledge of medications, GPs were not very clear on other aspects of pharmacists' training.

**Awareness of the role of pharmacists in general practice** Some GPs were aware of the evidence base for the role in the United Kingdom, where they had heard it worked well and has produced benefits. However, some GPs were unfamiliar with pharmacists' roles in practices and found it difficult to delineate the role from that of community pharmacists. Therefore, interviewees believed it would be necessary for GPs, other practice staff, the government, and patients to be educated on the nature of the role and examples of where it has worked well and shown positive outcomes.

## Discussion

### Main findings

This novel interview study is the first to focus on determining GPs' perceptions towards pharmacists working in practices outside of private practices among GPs who have not worked with pharmacists in practices previously. GPs interviewed in this study were broadly optimistic regarding certain aspects of pharmacists working in practices and potential outcomes. However, GPs also displayed concerns about pharmacists' impact on others' roles and workloads, funding, and training pharmacists to conduct roles in practices. Therefore, this study provides a useful insight into GPs' concerns regarding pharmacist integration for policymakers, researchers, GPs, and pharmacists to refer to when developing pharmacist services in practices in regions where the role is yet to establish itself.

### Strengths and limitations

A diverse sample was interviewed in terms of age, gender, experience, practice size and location, and level of deprivation of surrounding areas—therefore improving our findings' transferability. Although only 1 single-handed GP was interviewed, this is broadly in line with the prevalence of single-handed GPs in Ireland,<sup>19</sup> but may limit transferability of the findings to this group. There may have been an element of volunteer bias amongst our sample,<sup>30</sup> as several GPs who agreed to participate were GP trainers who are involved in training and educating GPs, and therefore may have been more enthusiastic and interested in this research. As the interviewer was a pharmacist, some GPs may also have been affected by social desirability bias and may have been overly positive about the subject; however, this did not seem to pose a significant issue given the diverse opinions provided, whereby participants described both positive and negative opinions of integrating pharmacists in practices. The research team included 2 practising GPs and 4 pharmacists, therefore bringing a breadth of experiences and perspectives to data analysis and its interpretation. Furthermore, using the TDF in this study to inform the topic guide and as part of the analysis was a key strength, as interview studies which utilize this framework typically

unearth additional themes than those without a theoretical basis.<sup>31,32</sup>

### Comparison with existing literature

This study's findings share broad similarity with the recent QES regarding GPs' views on pharmacists in practices.<sup>11</sup> However, a notable contrast was that the present study had conflicting viewpoints about pharmacist capabilities in managing complex patients, e.g. whereby GPs included multimorbid older patients here. This finding is at odds with the QES—where GPs described pharmacists as useful in managing complex patients—and a recent interim report from the iSIMPATY Project in other parts of Ireland.<sup>18</sup> Pharmacist-led medication reviews in practices performed during iSIMPATY in patients with high complexity were reported as very acceptable to GPs, improved medication regimen appropriateness, and provided a significant return on investment.<sup>18</sup> A feasibility study and subsequent qualitative evaluation has also recently been carried out in Ireland.<sup>33,34</sup> GPs in the feasibility study reported an increase in their workloads secondary to pharmacists reviewing medications in their practices; however, as the reviews resulted in the identification and resolution of various issues, they felt the overall impact on workload was worthwhile.<sup>34</sup> This mirrors the perceptions of our GP interviewees regarding the potential impact of pharmacists on their workloads. However, in contrast with our findings based on preconceptions, GPs in the other Irish studies emphasized the utility of pharmacists in the management of complex chronic diseases.<sup>34</sup> Communicating evidence from general practice pharmacist initiatives in Ireland like these may be important to reassure GPs who are concerned about pharmacists' capabilities to assist in care provision to complex patients.<sup>18,33</sup>

Whilst this study, like the recent QES,<sup>11</sup> found that some GPs were interested in pharmacists undergoing additional postgraduate training, a notable suggestion from the present study was to have internships in practices during pharmacists' undergraduate training. Hazen et al. designed a learning programme to train pharmacists to work in practices, and concluded that additional training is required to encourage role implementation.<sup>35</sup> In England, where the role is established, there is formal pharmacist training via the "Primary Care Pharmacy Education Pathway,"<sup>36</sup> which comprises workplace-based training in practices (including independent prescribing training).<sup>36</sup> Literature on undergraduate training in general practices for pharmacists remains limited other than the examples given, further research on this subject may help inform the development of training to support the development of pharmacists' roles in practices.

GPs in this study supported pharmacist prescribing within practices. This is positive given evidence that pharmacist prescribers have been shown to prescribe safely, appropriately, and improve service accessibility.<sup>37,38</sup> Our finding is also in congruence with views already reported in the literature from GPs who worked with a pharmacist prescriber in their practice, which were mostly positive and supportive of pharmacist prescribing.<sup>39</sup> In contrast, GPs working in private practices in a study by Saw et al. were less enthusiastic about expanded pharmacist roles (like prescribing), and commonly viewed pharmacists as "medicines suppliers" rather than "patient-centred health professionals."<sup>12</sup> A recent survey from Northern Ireland reported that whilst 47% of GPs

had a prescribing practice-based pharmacist, 31% said their pharmacist only sometimes had confidence to make clinical decisions.<sup>40</sup> So, although benefits of pharmacist prescribing in practices are clear and both GPs and patients appear to be receptive, pharmacists must be appropriately equipped with clinical decision-making skills by providing them with adequate training and mentoring.

Lastly, a unique finding was GPs' interest in pharmacists' involvement in monitoring high-risk medications such as lithium and methotrexate. Studies which have evaluated pharmacists' roles in practices have not reported this explicitly, although it may form part of other tasks mentioned like "conducting audits" or managing "requests for biochemistry."<sup>7,41</sup> This is a useful finding given reports of suboptimal monitoring of medications like lithium in Ireland; for example, 1 study found it was often not clear who was responsible for monitoring lithium and there was significant variation in the frequency of monitoring.<sup>42</sup> Pharmacists' involvement in such monitoring could be advantageous given pharmacists undertaking this in the PINCER study in the United Kingdom showed significant improvements in monitoring warfarin, methotrexate, lithium, and amiodarone.<sup>43</sup>

### Implications for practice and research

This study offers an insight into GPs' perceptions regarding pharmacists working in practices, which included only GPs who had not worked with pharmacists in practices. These perceptions will be useful for policymakers, GPs, researchers, and pharmacists trying to integrate pharmacists into practices, and may prove particularly useful in countries where the role is not yet established. For example, given GPs' interest in further training for pharmacists to work in practices, undergraduate and postgraduate training opportunities specific to general practice should be developed to coincide with role development in countries where these roles are being implemented. Considering GPs' emphasis on the importance of role definition to prevent encroachment, and as GPs elucidated that patients and sometimes themselves may be unclear about pharmacists' training and roles in practices, an awareness campaign may be useful to inform patients and GPs about pharmacists' roles in practices and to encourage acceptance of pharmacists in this setting as a social norm. The need for an awareness campaign is a sentiment also echoed in a recent interview study conducted in Ireland which sought pharmacists' perceptions of integrating pharmacists into general practices.<sup>44</sup>

Despite questioning GPs about workload in this study, it is still not clear how pharmacists in practices will impact the workload of GPs, nurses, or administrative staff. Therefore, it would be useful to determine workload impact through future research, as this may currently be acting as a barrier to GPs engaging with the development of such pharmacist roles. GPs in this study highlighted that integrating pharmacists into practices may depend on individual GP and practice characteristics; therefore, it would be valuable to assess further how such characteristics may influence pharmacist integration and thereafter how future efforts to integrate pharmacists should be tailored accordingly to individual GPs and practices. Using the TDF in this study allows for the mapping of predominant TDF domains to the Behaviour Change Wheel to identify potentially suitable intervention types, thus increasing the likelihood that this study will inform more effective behaviour

change interventions that aim to integrate pharmacists into practices in the future.<sup>45,46</sup>

### Conclusion

GPs interviewed in this study were broadly optimistic regarding aspects of pharmacists working in practices and potential outcomes, which appears to be very timely given current pressures in general practice. However, this study also reveals GPs' concerns about pharmacists' impact on others' roles and workloads, funding, and training pharmacists to conduct roles in practices. This research has created a greater understanding of GPs' perceptions of integrating pharmacists into general practices, which will better inform future general practice-based pharmacist interventions and roles, which aim to enhance patient care, outcomes, and financial savings to stretched healthcare systems.

### Supplementary material

Supplementary material is available at *Family Practice* online.

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### Ethical approval

Ethics approval to conduct this study was granted by the Social Research Ethics Committee, University College Cork, Cork, Ireland.

### Conflict of interest

None declared.

### Data availability

Data are available upon reasonable request.

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