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Research Article

Challenges and opportunities of Italian-qualified pharmacists relocated to work in Great Britain: A cross-sectional survey

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Abstract

Background: The Italian university system is actively revising the Master of Pharmacy (MPharm) curriculum to reflect post-COVID healthcare needs and a greater clinical focus. Understanding the challenges and opportunities faced by Italian pharmacists that relocated to Great Britain (GB) might provide valuable insights regarding the transferability of knowledge and skills obtained in the Italian pharmacy degree.

Aim: The study aimed to capture the perceptions of Italian pharmacists practising in GB regarding the Italian pharmacy degree programme and to explore the challenges and opportunities they face in their new professional environment, ultimately to inform the Italian government and related stakeholders (Ministry of University and Research, MUR) about the need to update the Italian MPharm curriculum to make it more clinically relevant and aligned with international standards.

Materials and methods: The authors developed a 50-item survey, pilot tested and reviewed for face and content validity by an expert panel. Participants' characteristics, reasons for moving to GB, and data on their experience of practising as a pharmacist in Italy and GB were collected using Likert-type items and open- and closed-ended questions. Convenience sampling was used, and a sample power calculation was not deemed necessary. Statistical analysis involved descriptive analysis presenting frequencies and percentages for Likert-type and categorical items.

Results: An estimated 281 pharmacists qualified in Italy are registered with the General Pharmaceutical Council in GB. Of these, 54 took part in the survey, resulting in a probable coverage of the sample population of 19.2%. Respondents pointed to the lack of job satisfaction and limited future perspectives as the main reasons to leave Italy (38.9% and 83.3%, respectively). Other reasons to relocate to GB were clinically focused job opportunities and better salaries (68.5% and 79.6%, respectively). Notably, almost two-thirds of the participants affirmed that Italian pharmacy degrees were insufficient to meet the requirements for practising as a pharmacist in GB.

Conclusion: Different approaches to teaching clinical pharmacy and practical aspects seen in the pharmacy degree programmes in Italy and GB highlight a clear need for aligning the Italian pharmacy curriculum with the modern requirements of the pharmacy profession. Additionally, this alignment would facilitate the movement of Italian pharmacists into the GB healthcare system and beyond.

Keywords

pharmacy, education, skills, barriers, challenges, opportunities

Highlights

- Italian pharmacists leave due to insufficient job satisfaction and future prospects.
- Main reasons to move to GB include more clinical focus and superior salary.
- Two-thirds of participants report Italian pharmacy degrees fall short in practical GB job skills.
- Urgent need to update the Italian pharmacy curriculum for up-to-date skills.
- Essential topics to be enacted: pharmaceutical care, internal medicine, semiotics, and diagnosis.

Introduction

The General Pharmaceutical Council (GPhC) defines the pharmacist as responsible for the safe supply of medicines, ensuring their suitability for patients, and providing advice on their safe and effective use (General Pharmaceutical Council 2017). In March 2016, the Board of Pharmaceutical Practice of the International Pharmaceutical Federation (FIP) adopted the following definition of a pharmacist: "a scientifically-trained graduate healthcare professional who is an expert in all aspects of the supply and use of medicines" (International Pharmaceutical Federation (FIP) 2016). In addition to traditional roles, pharmacists contribute to patient care through medicine reviews, counselling, drug interaction and adverse drug reaction prevention, antimicrobial stewardship, and prescribing advice (International Pharmaceutical Federation (FIP) 2020). The FIP recognises pharmacists as medication experts, emphasising their role in medication and patient safety throughout the process of medicine application (International Pharmaceutical Federation (FIP) 2018). In the last decade, the pharmacy profession has shifted towards a patient-centred approach (Wolters et al. 2017).

To support this shift, various organisations, including the FIP and World Health Organization (WHO), have recommended aligning pharmacy curricula with practice to enhance patient care and communication skills (World Health Organisation 1994; Anderson et al. 2009; International Pharmaceutical Federation (FIP) 2013; McKeirnan et al. 2022). Pharmacy education has consequently evolved to incorporate biological, pharmaceutical, clinical, socioeconomic, and behavioural sciences with practical experience (Anderson 2002; Rhoney et al. 2021).

Different countries have adapted their pharmacy curricula to emphasise clinical practice and patient-centred care, while others still focus more on basic sciences (Nunes-da-Cunha et al. 2016; Loennechen et al. 2018). Differences in education would be encouraged if the curricula were developed based on their health needs in the country, which is advocated as the needs-based education model by FIP (International Pharmaceutical Federation (FIP) 2017). Meanwhile, harmonisation of pharmacy education was encouraged in European countries through the Bologna agreement, considering the free movement of workers within the European Economic Area (Atkinson and Rombaut 2011). However, European countries still have varying educational requirements, with the duration of bachelor's or master's degrees in pharmacy ranging from three to six years of study. Graduates often complete supervised placements in licensed pharmacies before passing a final assessment and joining the professional register required to practice as a pharmacist (Garattini and Padula 2018). The analysis provided by Arakawa et al. (2020) offers a comparative look at how Great Britain (GB) leads in dedicating a significant portion of its pharmacy programme to Pharmacy Practice, Pharmaceutical Care, Clinical Pharmacy, Law, and Social Pharmacy (PRAC) courses (Arakawa et al. 2020a). Indeed, according to the data from Arakawa et al., GB allocates 45.1% of its total syllabus time to PRAC courses, amounting to 1465.23 contact hours. This is substantially higher than the sample mean of 27.8% across surveyed nations and when compared with other European countries and the USA, indicating a strong emphasis is placed on practical and clinically oriented education in GB.

Structure of the pharmacy degrees in England and Italy

In GB, most pharmacist qualification is awarded upon completion of a GPhC-accredited four-year Master of Pharmacy degree (MPharm), followed by a 52-week foundation training programme under the supervision of a registered pharmacist (Sosabowski and Gard 2008). Some universities offer a five-year degree that includes the foundation training year. Successful completion of the GPhC registration assessment (formerly the pre-registration exam) allows prospective pharmacists to join the statutory pharmacy register. In 2021, the GPhC introduced new standards for the initial education and training of pharmacists, outlining the knowledge, skills, and professional behaviours required to become a pharmacist, leading registered pharmacists to be independent prescribers following the graduation of new 2021 MPharm and completion of foundation training in 2026 (General Pharmaceutical Council 2021). The MPharm degree aligns with the Bologna agreement as an "undergraduate master's programme," making it accessible without a prior bachelor's degree and recognised across Europe.

This allows European Union (EU) citizens to register as pharmacists in any EU member state after completing necessary adjustments like language tests and supervised work (Chamberlain 2005; European Council 2005). As for the GPhC regulations, pharmacists who qualified in the European Economic Area (EEA) may be able to apply for recognition of their qualifications. To do this, they must hold a 'relevant' qualification that is from an EEA country listed in Annex, Section 5.6.2 of Directive 2005/36/EC, started after the reference date specified against the EEA country in which the qualification was awarded, and complies with all the minimum training requirements described in Article 44 of Directive 2005/36/EC. Once the qualification is recognised, an application can be made to register and practice as a pharmacist in Great Britain. However, pharmacists who qualified in the European Free Trade Association (EEA-EFTA) countries (Iceland, Liechtenstein, or Norway) will need to complete a different route to registration (General Pharmaceutical Council 2024). Additionally, non-EU pharmacists or EU pharmacists qualified outside the EU can join the GPhC register through the Overseas Pharmacist Accreditation Programme (OSPAP), a year-long postgraduate programme followed by the same one-year foundation training. Entry to MPharm programmes is typically based on A-Level results, especially in chemistry, with universities varying in their use of interviews or entrance exams. Admissions also consider the applicant's fitness to practice, assessing candidate credentials to ensure they meet professional registration requirements (Sosabowski and Gard 2008).

In Italy, pharmacists can qualify by completing either a MUR accredited master's degree in pharmacy or chemistry and pharmaceutical technologies (CTF) (Italian Ministry of University and Research (MUR) 2007). Both courses last five years and include a six-month training placement within community or hospital pharmacies. The Italian curriculum, which aligns with a specific competency framework, consists of 300 European Credit Transfer and Accumulation System (ECTS) credits, strongly emphasising chemistry and basic sciences (Italian Ministry of University and Research (MUR) 2007, 2; Montepara et al. 2021). Previously, graduates were required to pass the State Examination, a written, oral, and practical examination covering key subjects such as pharmacology, pharmaceutical analysis, chemistry, and compounding, as well as relevant pharmaceutical legislation, to join the professional register/pharmacist board and practice as community pharmacists (Italian Ministry of Public Education, 1957). However, this requirement was lifted with Legislative Decree n.163 of 8 November 2021 (Italian Government 2021). Indeed, from 2023/2024, graduating from a pharmacy degree programme will be sufficient for practising as a community pharmacist. The new legislation aims to streamline and simplify the process of becoming a pharmacist while upholding high standards of education and professionalism. Although further four-year postgraduate qualifications (established in the mid-1990s) are necessary to practice in hospital settings (Polidori et al. 2022), most Italian pharmacists (65%) work in community pharmacies, pharmaceutical industries, or engage in university research (Federfarma 2022).

Other European countries follow similar routes. However, a study from Atkinson and Rombaut (2011) highlighted a high level of heterogeneity in pharmacy curricula in Europe (Atkinson and Rombaut 2011). Since international migration of healthcare professionals is a widespread phenomenon that contributes to and impacts individual healthcare systems, it is important to equip pharmacists with the skills and knowledge required to meet diverse healthcare needs (Arakawa et al. 2020b). Doctors, nurses, and pharmacists often seek career opportunities abroad to improve their skills, enhance their knowledge, and broaden their professional experience. Individual motivation, such as job satisfaction, remuneration, and working conditions, also contributes to the movement of the healthcare workforce (Stilwell et al. 2004).

Pharmacy education in the EU and the recognition of pharmacy degrees are harmonised by the Bologna Declaration (Chamberlain 2005) and the EU Directive 2005/36 (European Union 2013). The former aims to harmonise qualifications and facilitate academic recognition and professional mobility. The latter allows professionals with qualifications from one member state to pursue the same profession in another. This harmonisation, which enables Italian pharmacists to practice in different EU and non-EU countries, such as GB, is often considered a gold standard for clinical pharmacy education and attracts pharmacists seeking career opportunities (Patel 2016). Additionally, the integration of internationally trained pharmacists, particularly those from the EU, plays a significant role in the British healthcare system. According to Schafheutle and Hassell (2009), in 2007, 40.6% of internationally trained pharmacists registered in Great Britain were from Europe (Schafheutle and Hassell 2009). These pharmacists are generally younger, with a mean age of 31.7 years, and a higher percentage of them are women (68%) compared to their British-trained counterparts (56%). The study also highlights that these pharmacists are more likely to be based in urban areas such as London and are predominantly employed full-time, indicating their crucial role in the delivery of pharmacy services across Great Britain. This trend has been unchanged. Lovel (2023) stated that there was an increase of the number of overseas pharmacists applying to train to work in GB through the OSPAP in 2022/23 by over 265 compared with the previous year (Lovell 2023).

The Italian pharmacy curriculum reflects the role and responsibilities of the pharmacist working in community settings, which primarily focuses on safe dispensing and counselling for patients on the safe use of medicines. Community pharmacists in Italy have experienced a shift in their role towards a more integrated approach to patient care. This transformation is supported by scientific bodies such as Federfarma (National Federation of Pharmaceutical Entrepreneurs) and aligns with the Federation of the Orders of Italian Pharmacists (FOFI) and the Pharmaceutical Group of the European Union guidelines

(Pharmaceutical Group of the European Union (PGEU) 2018, 2019). While medication dispensing and counselling remain an essential duty, community pharmacists also provide specialised services such as point-of-care testing, electrocardiogram monitoring, and interventions to monitor adherence and manage chronic diseases. Community pharmacists also play a crucial role in preparing personalised medications and orphan medicinal products using galenic formulations (Carvalho and Almeida 2022).

A shift within the profession in Italy was facilitated by recent legislation following the COVID-19 pandemic, allowing pharmacists to deliver clinical services aimed at preventing the spread of the virus ("Farmacia dei servizi": provision of pharmacy services) (Italian Ministry of Health 2013). During the pandemic, community pharmacists provided essential healthcare services, offering professional advice, urgent treatments, and support to patients. They also conducted screening activities and administered vaccines, contributing to the vaccination campaign (Giua et al. 2021). These expanded clinical services became permanent through the "aperture" decree in May 2022 (Italian Government 2022). Currently, community pharmacists in Italy administer COVID and influenza vaccines as part of their services, significantly contributing to public health (Ciliberti et al. 2020).

Although Italy has made a significant step forward in facilitating the provision of clinical services delivered in community pharmacies, the pharmacy degree curriculum has not changed accordingly. The gap in knowledge and lack of necessary clinical skills to provide clinical services can be a barrier to service provision (Onozato et al. 2020). A comparative study conducted by Nunes-da-Cunha et al. (2016) revealed that the Italian pharmacy degree curriculum has comparatively fewer clinical courses with respect to the United States, offered throughout the five-year programme (Nunes-da-Cunha et al. 2016). Indeed, the number of clinical subjects taught in other countries' pharmacy degrees varied between 1 (Slovenia) and 18 (United States), while the percentage of patient-centric courses ranged between 19.7% (Greece) and 54% (Malta). In such regard, in the latter study, Italy accounted for 2 clinical courses and an overall of 23.8% patient-centred courses.

To ensure that the pharmacy programme meets the required competencies of the pharmacy profession, FOFI, the Italian Ministry of Health, and the National Conference of University Deans (CRUI) worked together to review the programme delivered by Italian universities. Indeed, a decree issued in October 2022 outlined the pharmacy curriculum reform, which has been enriched by adding disciplines focused on delivering clinical experiential models and a wider range of core competencies related to evidence-based practice and patient-centred care (Italian Ministry of University and Research (MUR) 2022). The new pharmacy curriculum includes 10 university learning credits covering topics such as internal medicine, endocrinology, paediatrics, radiotherapy, and imaging. The CRUI and local academic representatives now face the task of implementing these recommendations.

Similarities and differences between the Italian and GB MPharm curricula

The undergraduate pharmacy programmes in Italy and GB share some similarities, albeit with the implementation of a more outcome-based approach (General Pharmaceutical Council 2021). GB's MPharm curriculum might vary significantly between universities. Both curricula cover basic and applied sciences (biology, chemistry, biochemistry, pathophysiology, etc.), clinical sciences (physiology, pharmacology, therapeutics, etc.), and professional practice subjects (legislation, ethics, pharmacokinetics, pharmacodynamics, etc.). The Italian and English programmes feature a training period to be completed in a patient-facing setting under the supervision of a qualified registered pharmacist (Italian Ministry of University and Research (MUR) 2007; Jacob and Boyter 2020).

With the implementation of the GPhC standards in 2021 (General Pharmaceutical Council 2021). GB universities are adapting their MPharm courses to include learning outcomes for independent prescribing so that, from 2026, all newly qualified pharmacists will become prescribers from the point of registration (Lovell and Clews 2024). To achieve this, the GPhC recommends a progressive and integrated approach to teaching and learning, following the spiral curriculum model developed by Harden (Harden 1999) (Fig. 1). Students are expected to demonstrate a deeper understanding and competence in the core areas of their degrees as they progress.

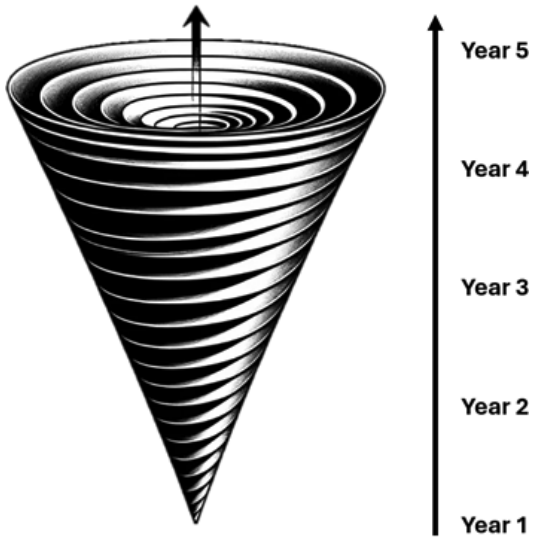

Figure 1. The spiral curriculum, image inspired by Harden (1999): What is a spiral curriculum? Medical Teacher 21:141-3.

Table 1 illustrates the variations in curriculum between the Italian pharmacy and CTF degrees. These curricula are based on specifications for accreditation provided by the MUR (Italian Ministry of University and Research (MUR) 2007). The Italian pharmacy degree emphasises the chemistry and physical science of medicines, providing a thorough understanding of the pharmacological properties of drugs. However, topics such as pharmacy practice, pharmaceutical care, and clinical pharmacy are not taught extensively.

Table 1. Comparison between the typical Italian Ministry of University and Research (MUR) accredited pharmacy and chemistry and pharmaceutical technologies (CTF) curriculum structures (MUR 2007).

	Italian Pharmacy Master's Degree	Italian CTF Master's Degree
First year	• General biology • Human anatomy • General and inorganic chemistry • Analytical chemistry • General Physics • Mathematics	• General biology • Human anatomy • General and inorganic chemistry • Analytical chemistry • General Physics • Mathematics
Second year	• Organic chemistry • Pharmacognosy and pharmaceutical botany • Biochemistry • Applied Biochemistry • Physiology	• Organic chemistry I • Pharmacognosy • Physical chemistry • Applied microbiology • General pathology • Biochemistry • Medicines analysis I
Third year	• General Pathology • Medicines analysis I • Pharmaceutical chemistry I • Microbiology and hygiene • General pharmacology and pharmacotherapy	• Pharmaceutical chemistry I • Organic chemistry II • Applied biochemistry • General Pharmacology and pharmacotherapy • Physical methods in organic chemistry • Drugs synthesis and extraction techniques
Fourth year	• Pharmaceutical chemistry II • Medicines analysis II • Toxicology • Pharmaceutical technologies	• Pharmaceutical Chemistry I • Analysis of medicines II • Pharmaceutical technologies I • Toxicology
Fifth year	• Pharmaceutical legislation • Pharmaco-economics or pharmacovigilance • Community pharmacy placement (6 months unpaid)	• Pharmaceutical technologies II • Synthesis of biomolecules and innovative drugs • Biotechnologies • Community pharmacy placement (6 months unpaid)

Although the CTF programme places a strong focus on chemistry and physics-related subjects, both Italian courses enable graduates to work as pharmacists in Italy once the degree has been obtained (Italian Government 2021).

GB students undertake short placements in community pharmacies, hospitals, or general practices throughout the undergraduate programme to gain practical experience and apply learnt skills (Jacob and Boyter 2020). This practical learning approach provides valuable real-world experience, a procedure that has been shown to garner appreciation from an educational point of view (Fantinelli et al. 2024) and also aligns with the Canadian NHS's emphasis on confidence-building in professional practice for pharmacists (Bartle 2005). Such an experiential approach could also bridge the gap between educational outcomes and labour market demands, a discrepancy that has been notably problematic in Italy, where the educational system has been criticised for not adequately preparing tertiary graduates for employment (Montanari et al. 2015). This contrasts with the Italian model, where experiential learning typically occurs only in the later years of pharmacy training (Italian Ministry of University and Research (MUR) 2007).

Indeed, undergraduate pharmacy programmes in Italy and GB differ significantly in terms of clinical exposure and practice. The Italian course focuses more on theoretical learning, while the GB programme combines theory with practical experience in clinical settings (Sosabowski and Gard 2008; General Pharmaceutical Council 2011; Jacob and Boyter 2020), allowing newly qualified pharmacists to work in various healthcare settings, including hospitals and general practices. In contrast, Italian pharmacists must complete a postgraduate 4-year degree in a hospital pharmacy to practice in secondary care [Scuola di Specializzazione in Farmacia Ospedaliera (SSFO) in Italian] regulated by the Italian Society of Hospital Pharmacy and Pharmaceutical Services (SIFO in Italian) (Polidori et al. 2022).

This, in turn, has also provided for a discrepancy in the collection and perception of (and ultimately, utilisation) of the pharmacy workforce between GB and Italy. The impact of community pharmacies within the UK healthcare system has now a long tradition of published research in public health (Horgan et al. 2010; Pearce et al. 2016; Peletidi et al. 2016) and keeps evolving, especially with the recent introduction of the Pharmacy First service (NHS England 2024). Hospital pharmacies also play a vital role in enhancing patient care and outcomes, while playing a pivotal role in pharmacy practice research projects with the endorsement of a specific curriculum for consultant pharmacists (Forsyth et al. 2022). Moreover, in the UK, there is a significant emphasis on integrating clinical pharmacists into primary care settings (Chopra et al. 2022). Indeed, such an addition has been demonstrated to reduce GP appointments and emergency department visits and was associated with overall healthcare cost savings despite increased primary care use (Hayhoe et al. 2019). On the other hand, Italy lacks a similar figure of primary care pharmacists, pharmacist prescribers, and consultants, albeit hospital pharmacy competencies are evolving towards a more clinically oriented role (Polidori et al. 2022).

Given these differences, it is uncertain whether Italian pharmacists have the necessary skills and competencies to face the challenges posed by the current healthcare system. A questionnaire was developed to explore and gather the perceptions of Italian pharmacists who migrated to GB for employment purposes.

As for the choice of the GB as a migration site for Italian-qualified pharmacists, as referenced in Eden et al. (2009), pharmacists experience higher job satisfaction levels when afforded more opportunities for clinical involvement (Eden et al. 2009). Additionally, it is important to consider the finding that "application-based pharmacotherapy, clinical decision-making, and team-based care models are not a common focus of the pharmacy curriculum in Italy, which is predominantly centred on the scientific disciplines," as reported by Montepara et al. (2021) (Montepara et al. 2021). Furthermore, Schafheutle and Hassell (2009) offered critical insights into the mobility of EU pharmacists to the UK by analysing registration data of internationally trained pharmacists in Great Britain (Schafheutle and Hassell 2009).

Taking all this into account, we hypothesised that Italian pharmacists in particular would be more inclined to move to the UK rather than other EU countries, attracted by the potential for greater job satisfaction due to the broader clinical opportunities available in the UK.

To date, no previous studies have evaluated the challenges, opportunities, and perceived barriers stemming from the potential lack of clinical skills among qualified Italian pharmacists when transitioning to a more clinical-focused role in a foreign country, particularly in GB. The findings from this study will form foundational information on current Italian knowledge/skill gaps for the future restructuring of Italian pharmacy courses.

Study aim

To identify challenges and opportunities for Italian pharmacists moving to GB, exploring their experiences, motivations, and adaptation processes in a new professional environment, along with the factors potentially affecting their possibility of finding a job in GB. This study aims to inform the Italian government and related stakeholders (MUR) about the need to update the Italian MPharm curriculum to make it more clinically relevant and aligned with international standards.

Overarching research question

How do the experiences, challenges, and opportunities encountered by Italian pharmacists practicing in Great Britain illustrate the need for updates to the Italian MPharm curriculum to enhance its clinical relevance and international alignment?

Key research questions

The key research questions of this survey were:

1. Assess the experiences of pharmacists working in Italy (evaluated in Section B of the survey).
2. Understand the motivations behind pharmacists' decisions to move to Great Britain (GB) (evaluated in Section C of the survey).
3. Identify any gaps between the knowledge gained during pharmacy education in Italy and the knowledge required to practice in GB (evaluated in Section D of the survey).
4. Explore the challenges and opportunities encountered by pharmacists in GB (evaluated in Section E of the survey).

The results of the survey have been reported following the Consensus-Based Checklist for Reporting of Survey Studies (CROSS) (Sharma et al. 2021) and Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklists (Ghaferi et al. 2021) (Fig. 2).

Materials and methods

Study design and setting

A cross-sectional survey was conducted by the Italian Society of Clinical Pharmacy (SIFAC) in collaboration with the Sapienza University of Rome (Italy), the University of Central Lancashire (UCLan, GB), and the University of Nottingham (GB) to collect data in GB in November 2022.

Participants eligibility criteria

All of the hereby included criteria needed to be met by study participants in order to be enrolled in the survey.

Inclusion criteria:

1. Participants who were qualified in Italy as pharmacists (i.e., obtained an Italian degree in either pharmacy or CTF) before moving to GB;
2. Participants registered in GB GPhC as pharmacists;

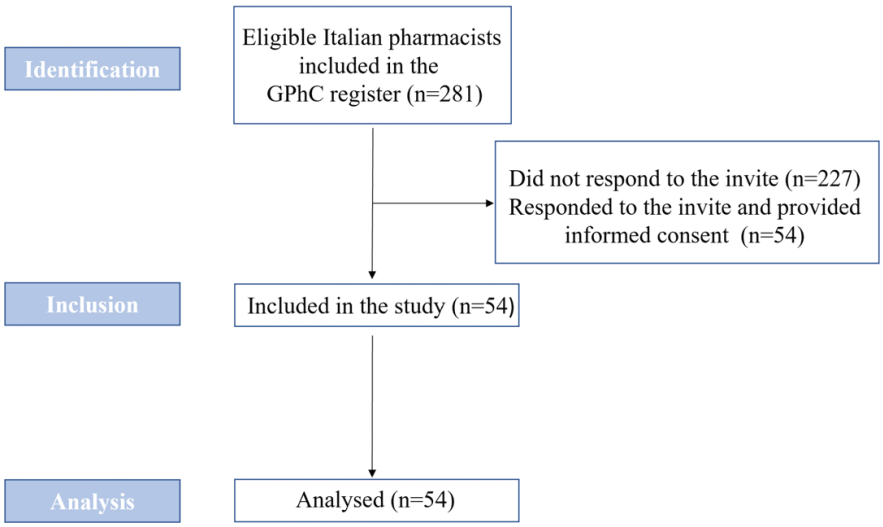

Figure 2. STROBE flow diagram of participants.

3. Participants who had experience in GB as a pharmacy assistant/trainee, pharmacy technician or pharmacist;

Exclusion criteria:

1. Participants who could not access the internet to complete the survey;
2. Participants who did not provide informed consent or chose to withdraw from the study at any time.

As for the choice of including within the inclusion criteria participants who had experience in GB as a pharmacy assistant/trainee, pharmacy technician, or pharmacist, given the different clinical contexts between the Italian and GB pharmacy curricula and the inherently different roles as pharmacists between the two countries, we assumed that many Italian pharmacists start working in these roles in the UK. Including this criterion (and item) in the survey allows us to explore the hypothesis that Italian pharmacists would possibly encounter skill barriers that do not allow them to find a job directly as pharmacists in GB. They may instead gradually become confident and accumulate experience and knowledge of the actual pharmacy roles in GB by first working in shadowing positions or with less clinical roles, such as pharmacy technicians.

Survey development

The development of the survey was carried out in two phases. In the first phase, the research team created the first version of the survey, which was pilot tested on a small sample of Italian pharmacy practitioners and members of the Italian Society of Clinical Pharmacy (SIFAC) (n = 6) to assess face and content validity. Based on their feedback (on comprehensibility, clarity, length, and coherence of the questions), the research team adapted the survey. A final questionnaire can be found in Suppl. material 1. The practitioners involved in the pilot test did not participate in the survey.

Data collection

The survey was designed and conducted on Google Forms. To ensure data integrity, Google Forms was configured to allow only one response per account, preventing participants from submitting multiple entries.

The study examined opinions, experiences, and attitudes of qualified Italian pharmacists' regarding their previous Italian experiences as pharmacists, their perception of advantages and disadvantages of the pharmacy curriculum, and potential clinical skill gaps after their transfer to a more clinically oriented work setting (GB).

Participants were asked to complete an online survey (please refer to Suppl. material 1 for further details) divided into five sections. The survey commenced with collecting general demographic and professional data to establish a baseline understanding of the participant cohort (Section A). We then explored the professional experiences within Italy to gauge the initial training and working conditions they encountered (Section B). The next part addressed the motivations behind their decision to relocate to GB (Section C). Section D was dedicated to evaluating the Italian pharmacy curriculum; it was split into two subsections where participants discussed which disciplines need to be enhanced (D1) and which could be scaled back (D2). Lastly, the survey focused on the practical aspects of transitioning to the pharmacy sector in GB. This final section (Section E) was further divided into three subsections: the relevance of various disciplines to their new working environment (E1), the process of registration and the dynamics of employment and career progression (E2), and the specific skills deemed essential for successful practice in GB (E3).

Variables

The following participant characteristics were collected: age range, sex, degree, final mark, whether pharmacy/CTF was their first choice as a degree, other degrees achieved before moving to GB, previous work experience in Italy before moving to GB, and years of experience in Italy as a pharmacist (Table 2). Five point-Likert-type items (ranging from 'strongly agree' to 'strongly disagree') were used to investigate participants' agreement with statements included in sections B to E.

Sample size

A convenience (non-random) sample was chosen. A sample power calculation was not performed because it was an exploratory and hypothesis-generating study (Jackson et al. 2021).

Sampling method

The invitation to participate in the online survey was disseminated via LinkedIn and Facebook to leverage the strengths of both platforms in reaching our desired audience. On LinkedIn, the invite targeted specific professional groups relevant to our research questions, capitalising on the platform's ability to reach a professional demographic, as demonstrated by Stokes et al. (2019) and Kozlowski et al. (2021) (Stokes et al. 2019; Kozłowski et al. 2021). On Facebook, the recruitment strategy was designed to complement LinkedIn by reaching a broader demographic, thus enhancing the diversity and representativeness of our participant pool, in line with the findings by Stuart and Moore (2021) (Stuart and Moore 2021).

Each invite included a cover letter and a participant information sheet. The cover letter detailed the study's purpose, its potential impact, and provided assurances of anonymity and confidentiality to address potential ethical concerns, in accordance with the ethical standards discussed by Gelinas et al. (2017) (Gelinas et al. 2017).

The participant information sheet elaborated on the study's scope, the voluntary nature of participation, the estimated time commitment, and included detailed contact information for the research team for any queries or concerns. Only respondents who agreed with participation on an electronic consent form (please refer to Suppl. material 1 for details) were then directed to the rest of the web questionnaire.

This recruitment strategy was designed to maximise the coverage of the sample population while ensuring ethical standards were upheld, addressing both the opportunities and limitations of using social media platforms for research recruitment. By employing a dual-platform approach, we aimed to mitigate the potential biases of each platform and enhance the overall efficacy of the recruitment process, aligning with the recruitment best practices and challenges discussed in the literature by Stokes et al. (2019), Kozlowski et al. (2021), and Stuart and Moore (2021) (Stokes et al. 2019; Kozłowski et al. 2021; Stuart and Moore 2021).

Consent

Respondents provided their informed consent by participating in the anonymous questionnaire.

Statistical analysis

Data analysis was conducted using different approaches, each providing a different insight into the data and results. For the analysis of participant characteristics, we employed basic descriptive statistics: the Likert-type and categorical items were presented as frequencies and percentages.

Software

The data were downloaded in Excel and .csv formats, managed, and analysed using R software version 4.2.1 (2022-06-23) and IBM SPSS Statistics version 28.

Results

In November 2022, 281 Italian-qualified pharmacists were registered in GB with the GPhC according to the GPhC after email correspondence with their offices; 54 subjects participated in completing the survey, giving a probable coverage of the sample population of 19.2%.

Participant characteristics (section A)

Table **2** presents the characteristics of the study participants. The age range of 41–50 was the most represented, while participants over 50 were the least represented. The survey sample consisted of predominantly female participants, with over two-thirds holding a pharmacy degree and one-third a CTF degree. Participants were categorised into three distinct regions based on the university from which they obtained their degrees. The South, including Sicily, was the most represented, while the Centre, including Sardinia, was the least represented. Over 40% of participants received lower final marks (66–90), based on the Italian university grading system for degrees (European Commission, Directorate-General for Education, Youth, Sport, and Culture 2015), while 27.8% achieved the highest possible marks. Pharmacy was the first choice for 68.5% of participants, and 61% possessed no other degrees. Furthermore, almost 80% of participants worked in Italy before relocating to GB.

Table 2. Participant characteristics.

Characteristics	n (%)
Age range	
41–50	21 (38.9)
31–40	18 (33.3)
20–30	8 (14.8)
> 50	7 (13.0)
Sex	
Female	32 (59.3)
Male	22 (40.7)
Degree	
Pharmacy	36 (66.7)
CTF	18 (33.3)
Where participants obtained their degrees?	
South	28 (51.9)
North	16 (29.6)
Centre	10 (18.5)
Final Mark	
66–90	22 (40.7)
90–100	15 (27.8)
110–110 cum laude	15 (27.8)
101–109	2 (3.7)
Was pharmacy/CTF your first choice as a degree?	
Yes	37 (68.5)
No	17 (31.5)
Other degrees achieved before moving to GB	
None	33 (61.1)
Specialisation	7 (13.0)
Post Graduate Diploma	6 (11.1)
PhD	5 (9.3)
Post Graduate Certificate	2 (3.7)
Second Master	1 (1.9)
Previous work experience in Italy before moving to GB	
Yes	43 (79.6)
No	11 (20.4)
Years of experience in Italy as a pharmacist	
> 3 years	17 (31.5)
1–3 years	14 (25.9)
< 1 year	12 (22.2)
Missing	11 (20.4)

What was your experience as a pharmacist in Italy? (Section B)

20% (n = 11) of the participants had no prior working experience in Italy before migrating to GB. As shown in Fig. 3, more than 50% of respondents chose strongly to disagree (23.3%) or disagree (39.5%) when asked about the adequacy of the Italian MPharm education in preparing them for their profession in Italy. Furthermore, 44.2% of respondents strongly disagreed with regard to recommending pharmacy/CTF studies in Italy to other

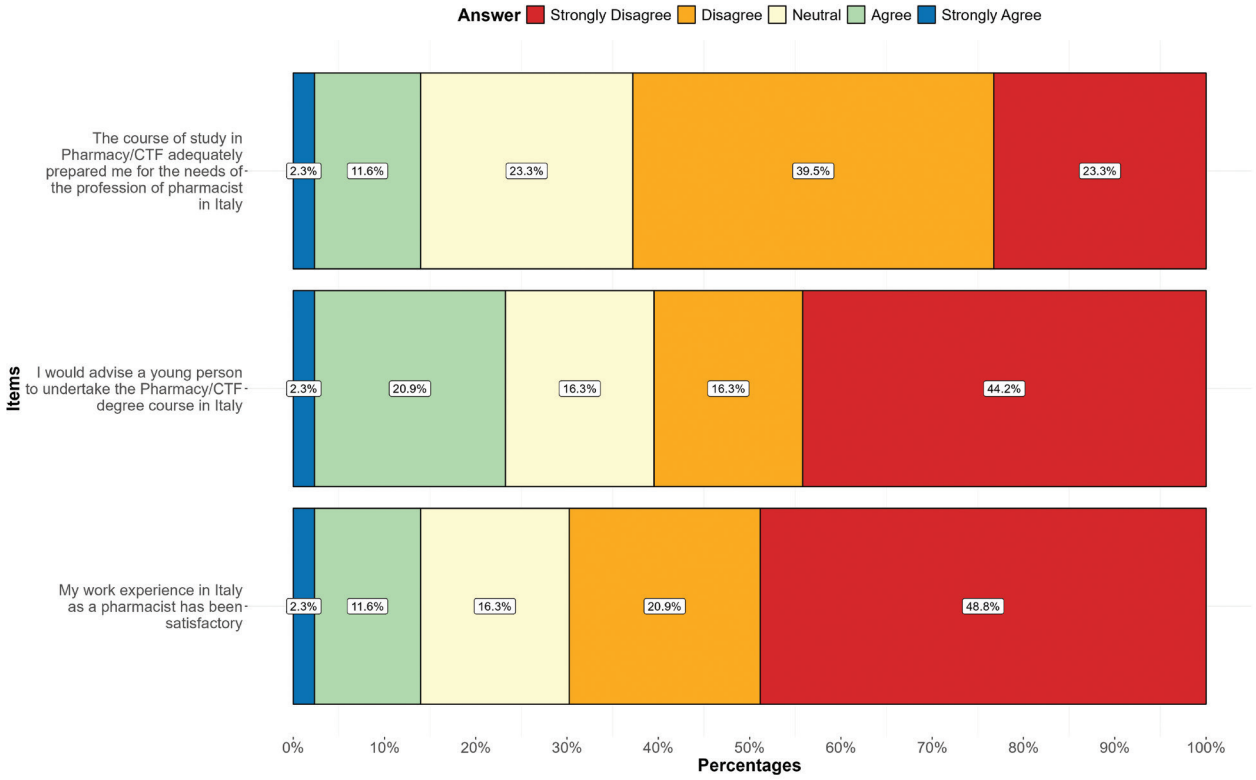

Figure 3. Experiences and views.

students, and the majority of participants expressed their dissatisfaction with their Italian experience as pharmacists, choosing responses indicating strong disagreement (48.8%) or disagreement (20.9%).

Why did you decide to move to GB? (Section C)

In reference to Section C of the survey (Fig. 4), the survey findings revealed that the primary driving force behind the decision to move to GB was not the purported lack of job opportunities in Italy, with 24.1% of respondents in disagreement and 44.4% expressing neutrality on the matter. Instead, the results indicated that participants were motivated by the perceived absence of opportunities for professional growth in Italy, with 83.3% of respondents strongly agreeing and 16.7% agreeing. Additionally, respondents felt that Italian salaries were not commensurate with their actual duties, with 79.6% strongly agreeing. Respondents also expressed a desire to deepen their knowledge of clinical aspects of pharmacy in GB, with 68.5% strongly agreeing and 24.1% agreeing.

Did you find a gap between the knowledge gained in Italy and that required to practice as a pharmacist in GB? (Section D)

Disciplines requiring implementation in the Italian curriculum (Section D1)

In our survey exploring disciplines requiring implementation in the Italian curriculum, as for Fig. 5, the responders displayed a propensity to incorporate all of the clinical subjects of our survey items in the Italian curriculum. The detected prevalence for clinical pharmacy foundations (79.6% strongly agreed and 20.4% agreed) and pharmaceutical care courses (57.4% strongly agreed and 38.9% agreed) was higher. Of particular interest, 46.3% and 40.7% of participants strongly agreed on the necessity of introducing courses on medical semiotics, also known as bedside diagnostic examination or physical diagnosis in English-speaking (Goic 2018), and patient-healthcare professional communication. These topics are currently absent from the Italian curriculum but are commonly required for pharmacist roles in GB, especially for independent prescribers and advanced clinical-orientated roles (University of Reading 2024). Notably, 14.8% and 7.4% of study participants strongly disagreed and disagreed, respectively, with the introduction of courses on pharmacy management. The reason for such trends probably stems from courses deemed to be farther from the clinical aspect of the profession.

Disciplines requiring a reduction in the Italian curriculum (section D2)

Concerning Section D2 (Fig. 6), a significant proportion of respondents identified subjects with less clinical content as candidates for reduction within the current Italian pharmacy curriculum. Specifically, 24.1% and 13% of participants concurred on reducing the organic chemistry component of the pharmacy degree, 37% and 14.8% were inclined to reduce the content of the analytical chemistry and pharmaceutical analysis courses, and 31.5% and 7.4% were also in agreement to scale down the content of the medicinal chemistry courses.

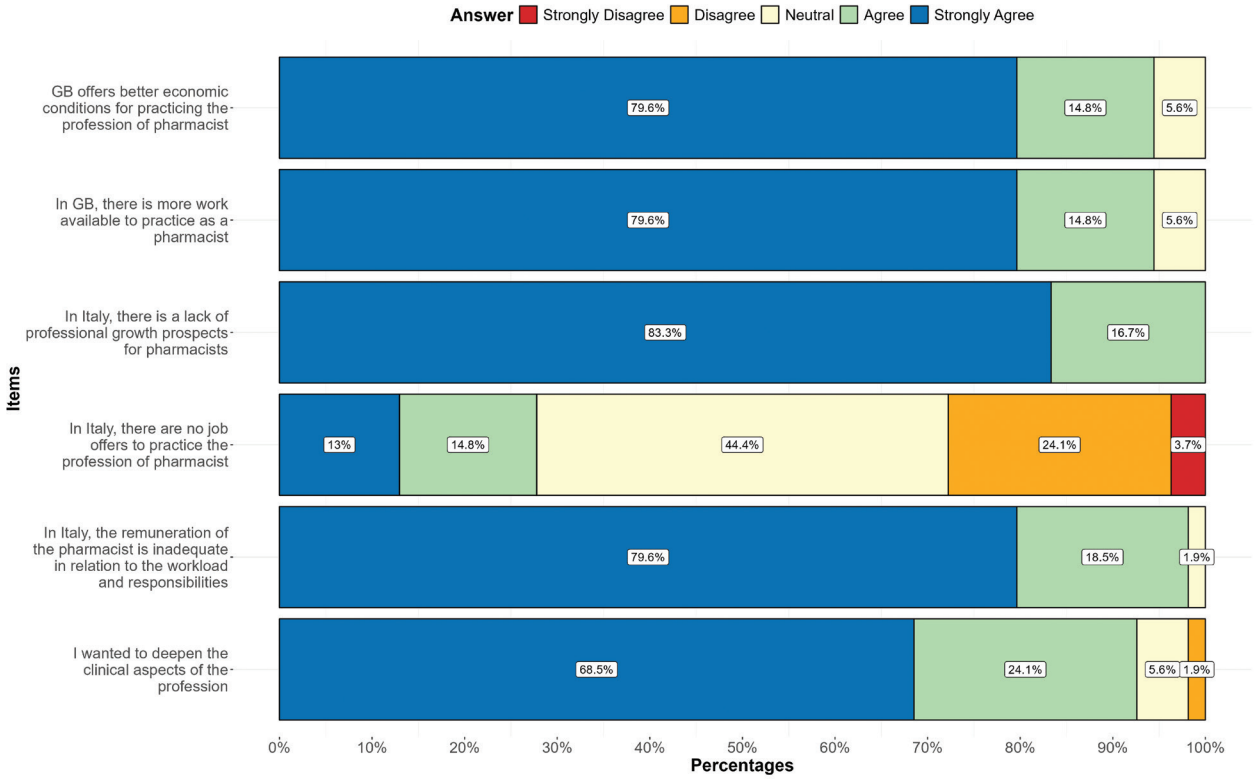

Figure 4. Motivations for moving to GB.

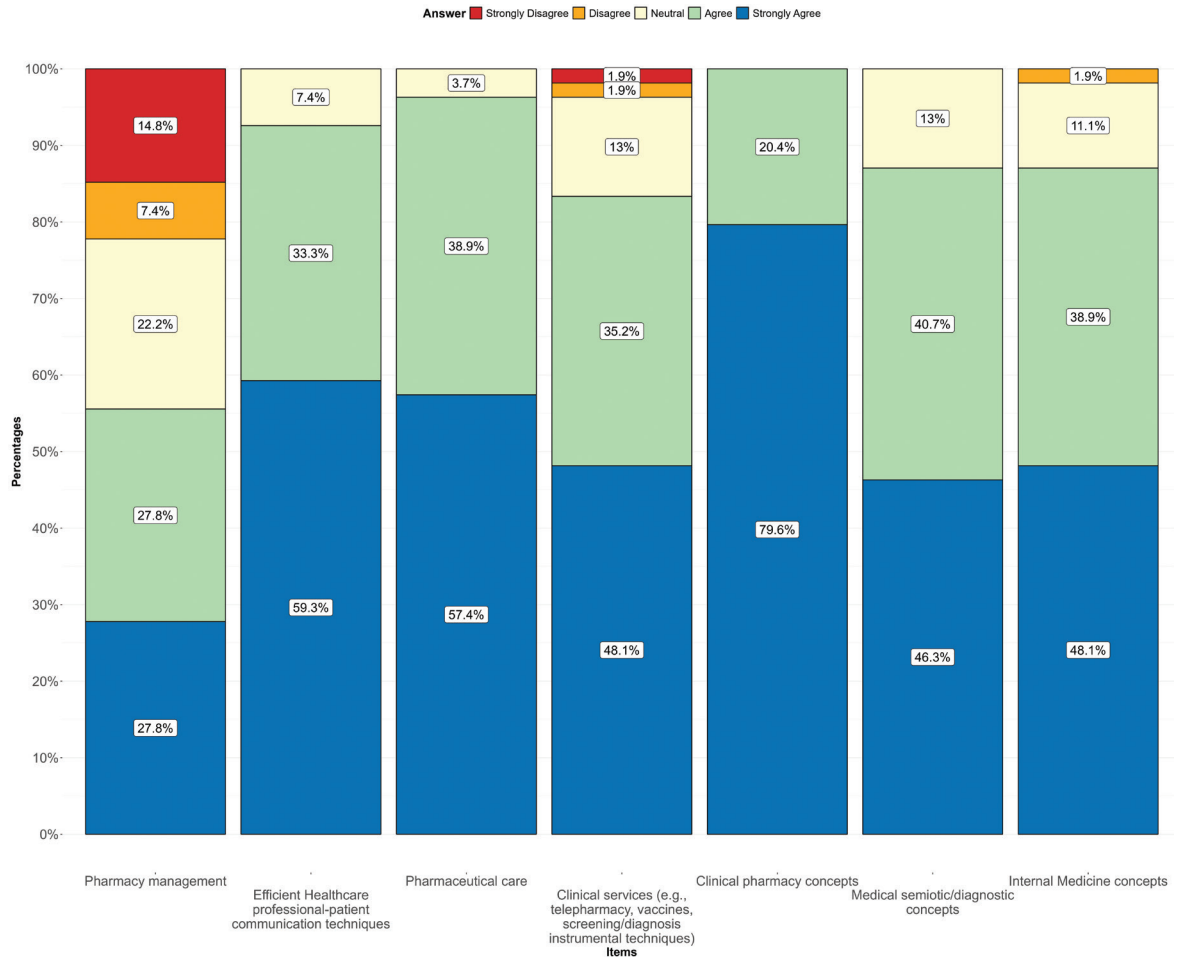

Figure 5. Disciplines requiring implementation.

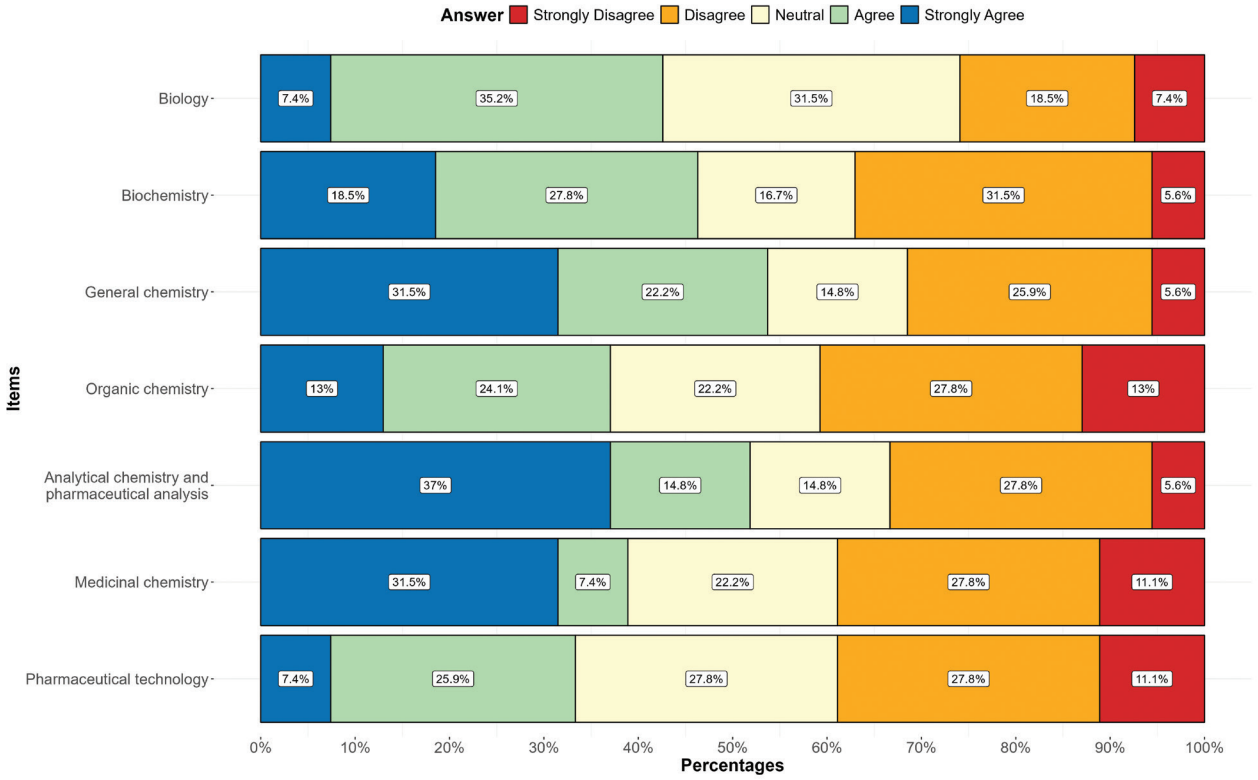

Figure 6. Disciplines to be reduced.

A fair number of participants also expressed concerns about the amount of time devoted to certain courses that were perceived as being less relevant to the practice of pharmacy, such as general chemistry and pharmaceutical technology, for which 7.4% and 25.9% of participants, respectively, strongly agreed and agreed to be reduced in terms of content.

Which challenges and opportunities did you find in GB? (Section E)

Useful disciplines for practicing in GB (section E1)

Concerning Section E1 (Fig. 7), the outcomes indicate that the pharmacology and pharmacotherapeutics course, which is currently included in the Italian pharmacy curriculum, was regarded as the most advantageous for undertaking a GB-based profession, with 63.0% of respondents agreeing and 13.0% strongly agreeing. Conversely, 42.6% and 27.8% of participants expressed strong disagreement with regard to analytical chemistry/pharmaceutical analysis and medicinal chemistry courses, respectively, as being useful for their pharmacy profession in GB. Notwithstanding, the responses to the latter subject were comparatively more evenly distributed across the two opposing endpoints of the Likert scale.

Registration, employment, and career progression (section E2)

The Section E2 findings, as reported in Table 3, reveal that while the majority of participants (81.5%) were successful in securing employment in GB within six months, a significant proportion (62.9%) were unable to secure employment directly as pharmacists. Instead, they had to work initially as pharmacy assistants/dispensers (16.7%), pharmacy technicians (18.5%), and trainee pharmacists (27.8%). Moreover, 22.2% of participants had to rely on such positions for a period ranging from 1 to 2 years. Notably, of the n = 34 (63%) participants who had to rely on such entry-level positions, 85% were then able to secure a job as pharmacists in GB, 11.4% left GB, whereas one (2.8%) participant was still working in such a role. These percentages demonstrate the challenges that Italian-trained pharmacists face in the GB job market, particularly in terms of career entry and progression. It also highlights the importance of addressing these challenges to ensure that foreign-trained pharmacists are allowed to fully utilise their skills and qualifications.

Skills required to work as a pharmacist in GB (section E3)

In accordance with the previous section, the final segment of the survey presented in Section E3 (Fig. 8) in-

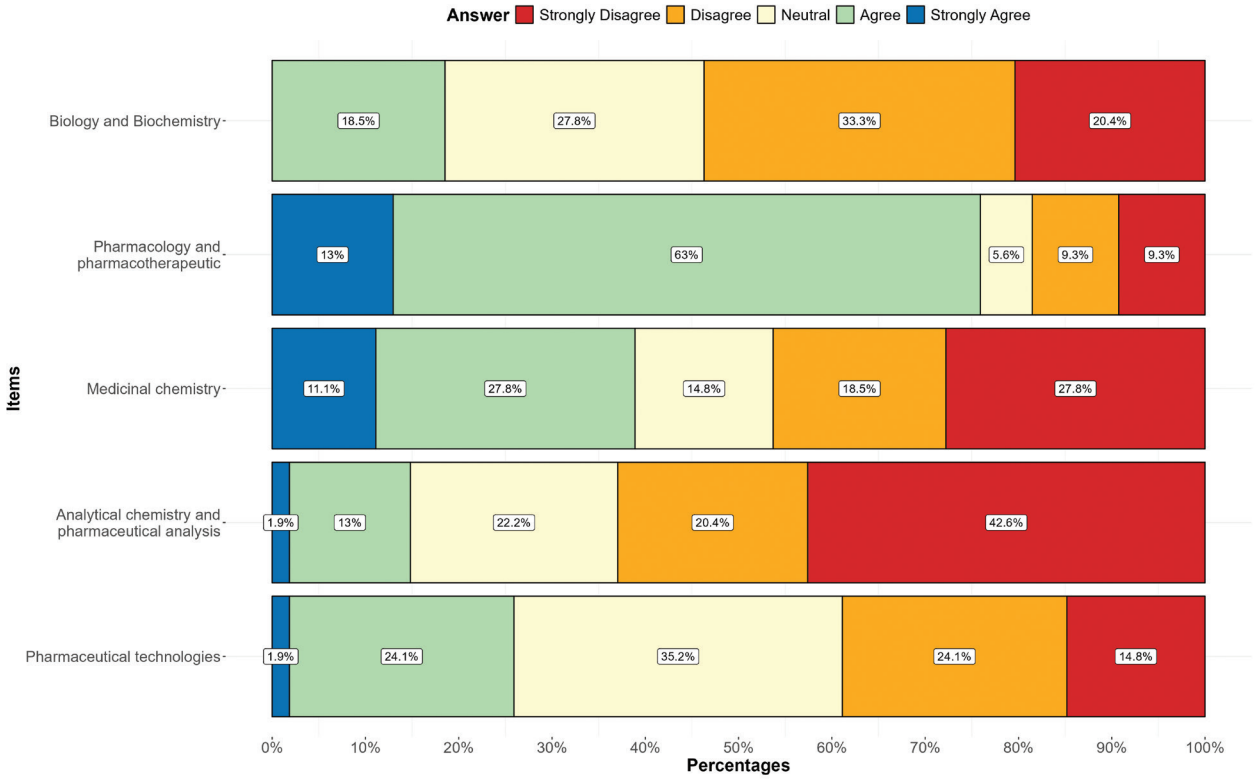

Figure 7. Useful disciplines.

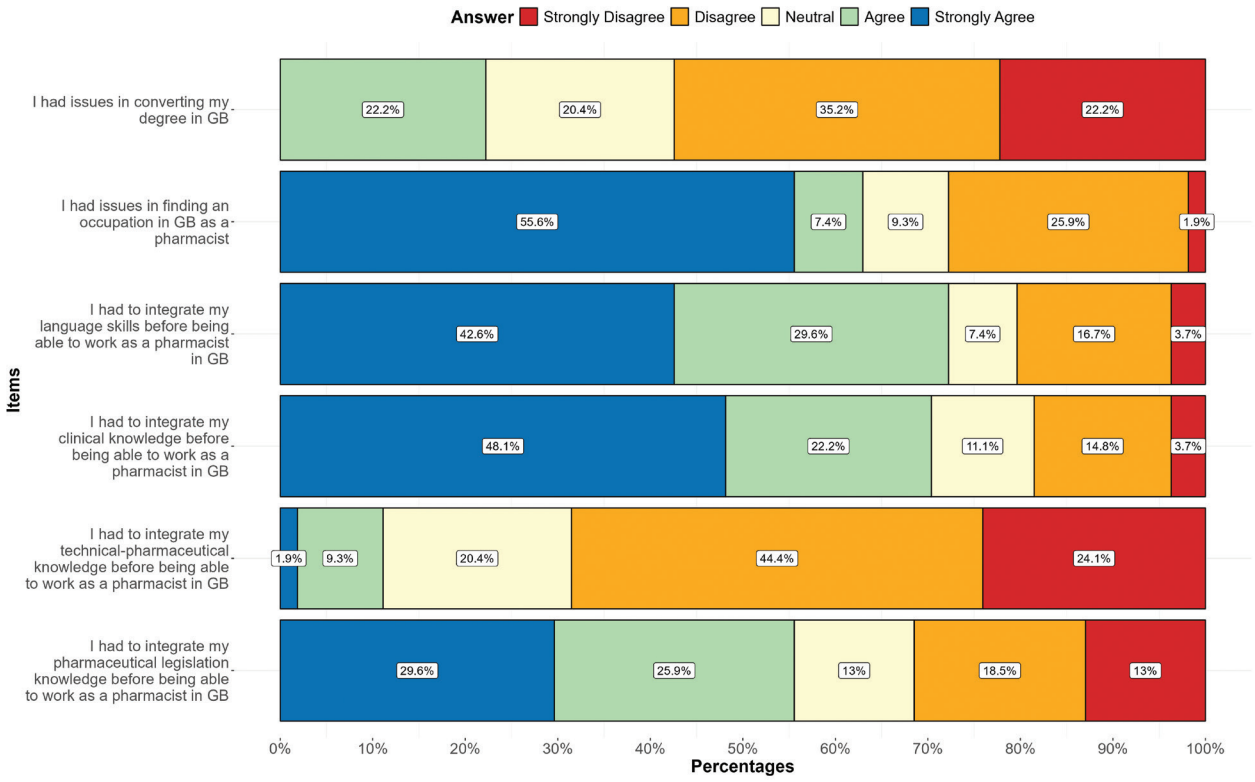

Figure 8. Skills required.

dicates that 55.6% of study participants strongly agreed that they encountered difficulties securing employment as pharmacists in GB. Notably, respondents perceived the most significant hurdle to be the need to acquire clinical skills, with 48.1% indicating a strong agreement and 22.2% expressing agreement. Similarly, a substantial proportion of participants noted that language proficiency posed a significant challenge, with 42.6% strongly

Table 3. Registration, employment and career progression.

Items	n (%)
Were you registered with the GPhC before moving to GB?	
No	27 (50.0)
Yes	27 (50.0)
How long did it take to find a job in GB?	
0–6 months	44 (81.5)
6–12 months	5 (9.3)
> 2 Years	3 (5.6)
1–2 years	2 (3.7)
Did you have to work as a trainee/assistant/pharmacy tech prior to finding a job as a pharmacist in GB?	
No	20 (37.0)
Trainee Pharmacist	15 (27.8)
Pharmacy technician	10 (18.5)
Pharmacy assistant/dispenser	9 (16.7)
How long did you have to work as a trainee/assistant/pharmacy technician prior to finding a job as a pharmacist in GB?	
< 1 year	21 (38.9)
Never	19 (35.2)
1–2 years	12 (22.2)
> 2 years	2 (3.7)
Are you still working as a trainee/assistant/pharmacy technician?	
No, I have found a job as a pharmacist	30 (85.7)
No, I have left GB	4 (11.4)
Yes	1 (2.9)
How many years of experience have you collected as a pharmacist in GB?	
> 5 years	34 (63.0)
1–3 years	8 (14.8)
3–5 years	7 (13.0)
< 1 year	5 (9.3)

agreeing and 29.6% agreeing. Conversely, respondents allocated less importance to the integration of their pharmaceutical-technical competencies, with 24.1% strongly disagreeing and 44.4% disagreeing.

Discussion

The professional healthcare workforce is increasingly characterised by social and cultural diversity (Frenk et al. 2010). Many international pharmacy graduates look for work outside the countries where they qualified, with substantial movement of EU-trained pharmacists to GB (Schafheutle and Hassell 2009). In such a scenario, this study was the first known research trying to identify and analyse the reasons Italian-qualified pharmacists relocated to GB, detailing the primary challenges, barriers, and opportunities they encountered, focusing on the need for a university curriculum reform in Italy to advance the pharmacy profession. Our findings revealed that despite Italy's robust pharmacy employment rates, significant motivations for migration included the pursuit of enhanced clinical roles and better career progression opportunities available in GB. Specifically, the study highlighted dissatisfaction with the scope of clinical training in Italian pharmacy education as a critical factor driving migration. Italian pharmacists sought to exploit GB's well-defined and clinically oriented roles to improve their skills and advance their careers.

The decision to enrol in a scientific university programme may be influenced by a variety of circumstances. According to various non-Italian research projects, the characteristics that strongly motivated students to select pharmacy over other health professions (such as medicine or dentistry) were remuneration, personal background, and work-life balance (Rajiah et al. 2020; Arbab et al. 2022). Notably, recent data indicate a decrease in the number of Italian pharmacy students since 2016 (Giani 2019), which may be attributed to the increasingly prevalent perception of high workloads and low satisfaction associated with the pharmacist role (Berassa et al. 2021; Robinson 2023). Such perspectives likely diminish the motivation that typically inspires students to pursue a university degree (Skatova and Ferguson 2014), hence possibly explaining the trends elucidated in Giani (2019) and, driven by a similar "research for motivation," the surge of Italian-qualified pharmacists who move to more clinically satisfying working environments (Eden et al. 2009; Giani 2019). In a recent comprehensive survey conducted by the Italian Professional Association of Non-Proprietor Pharmacists (CONASFA), Giani (2024) investigated the reasons behind the increasing trend of pharmacists leaving their profession in Italy (Giani 2024). The survey involved over 2030 valid responses from pharmacists across various Italian regions and types of pharmacies. Key findings from this survey highlighted dissatisfaction with compensation, including salaries, bonuses for objectives, and corporate welfare, as the primary drivers of this professional exodus. In addition to financial concerns, the survey pointed to significant stress and burnout among pharmacists, correlating these issues with the management of work-life balance, workload, and unclear paths for professional and educational advancement. In such regards, it is useful to point out that our survey highlighted a degree of participants' dissatisfaction with the Italian undergraduate pharmacy programme. Indeed, a significant number of respondents would not recommend enrolling in pharmacy or CTF programmes because they felt the courses did not provide adequate skills to perform the duties of a pharmacist. In addition, the majority of respondents declared that pharmacy/CTF courses were not their first-degree choice. This may suggest that the dissatisfaction with the chosen training course could have played an important role in the decision to pursue a pharmacy career in GB.

In the realm of employment, a high level of job satisfaction in pharmacy has been linked to improved collaboration among contributing pharmacists and lower turnover (Fadare et al. 2023). According to a mixed-method exploratory study by Aspden et al. 2021, the working environment, pay, and career were the three most common factors cited as reasons for leaving the pharmacy profession.

Noteworthy, the same claims were supported by the information gathered through our survey, where a significant number of respondents cited salary dissatisfaction, lack of career progression, and desire to work in clinical areas as the main reasons for relocating to GB for employment purposes. This is particularly relevant since the role of the clinical pharmacist in Italy is currently not as clearly defined and recognised as it is in GB (Polidori et al. 2022).

By working in GB, Italian pharmacists have the opportunity to enhance their clinical skills and knowledge, which may further motivate their migration to the country. This is particularly appealing given that pharmacists tend to experience higher job satisfaction levels when they are provided with greater opportunities for clinical involvement (Eden et al. 2009).

Indeed, our survey has revealed that the primary reason why Italian-qualified pharmacists leave the country was not related to employment opportunities. In fact, in the European context, Italy boasts the highest number of pharmacists working in community pharmacies, and it is the second country with the highest ratio of pharmacists per pharmacy (Federfarma 2022). Additionally, 63% of Italian pharmacists secure employment within one year of graduation, and this figure increases to 86.4% after five years of graduation (Federfarma 2022). Therefore, it appears that ample employment opportunities are available for pharmacists in Italy, as also perceived by our survey sample.

Concerning the employment contractual details, in Italy, the community pharmacists' salary is regulated by the National Collective Agreement (CCNL) signed by employer organisations for the commerce sector. This means that the community pharmacist contract falls under the "commercial" sector rather than the "healthcare" sector, hence differently from the contracts of other health professionals such as nurses or doctors (Giani 2023). In GB, the government, National Health System (NHS), and Pharmaceutical Services Negotiating Committee (PSNC) regulate the contractual framework for community pharmacists (Department of Health & Social Care 2019). This regulatory framework effectively incorporates pharmacies into the larger NHS strategy plan, allowing for the provision of accessible clinical services to the public and supporting the management of minor illnesses in the community, which alleviates the demand for services in general practice and urgent care settings. Clearly, in Italy at the moment there remains a profound disconnection between pharmacists' professional competencies and duties and the contractual recognition they receive (Giani 2023), factors that might also explain the majority of our survey participants being strongly dissatisfied with their work experiences in Italy as pharmacists.

Connecting with such work experiences in Italy, a considerable number of participants in our survey had previously worked as pharmacists in Italy before relocating to GB. This group of participants shared the view that the current Italian pharmacy programme did not adequately prepare them for the competencies required to perform the duties of a pharmacist in Italy. Indeed, the majority of our survey participants also felt to not recommend enrolling in a pharmacy or CTF degree in Italy.

In comparison to the United States and GB, Europe continues to place more emphasis on pharmacy sciences and less emphasis on clinical subjects in pharmacy curricula (Sosabowski and Gard 2008; Nunes-da-Cunha et al. 2016), clinical subjects that, in a problem-based learning delivery fashion, were perceived as particularly beneficial in a study conducted in two pharmacy schools in Italy (Montepara et al. 2021). Such findings also align with the results of a study conducted by FOFI and IPSOS (Federazione Ordini Farmacisti Italiani (FOFI) 2023) that highlighted that pharmacists have positive views on introducing clinical topics in the pharmacy degree recommended by the government legislation (DM1147) in October 2022 (Italian Ministry of University and Research (MUR) 2022). Interestingly, most of our survey respondents felt that courses such as internal medicine, medical semiotics, pharmaceutical care, clinical pharmacy, patient communication, and clinical services should be included in the Italian pharmacy curriculum. On the contrary, respondents indicated that the contents taught in such subjects as general chemistry, organic chemistry, analytical chemistry, and pharmaceutical analysis should be reduced.

Several studies have looked into the skills and competency gaps between pharmacists' education and pharmacy practice with regard to clinical and non-clinical tasks performed in pharmacy settings (Jamie 2013; Nasr et al. 2019; Kallio et al. 2021). Similarly, our survey invited participants to elaborate on potential challenges they encountered while pursuing a more stimulating career as a pharmacist in GB and any perceived gaps in their education that needed to be addressed. The majority of participants of our survey had to improve their language proficiency along with their clinical skills to secure a job in GB, in line with the already stressed Montepara et al. (2021) perceived gaps in the Italian pharmacy curriculum (Montepara et al. 2021). Furthermore, the majority of Italian pharmacists participating in the survey were required to work as pharmacy assistants, dispensers, pharmacy technicians, or trainee pharmacists before being able to confidently practise as pharmacists in GB. From such results, we might hypothesise that this transition period likely served to bridge the gaps in clinical knowledge and language skills, essential for effective practice in the GB's clinically oriented healthcare environment. These preliminary roles might have provided crucial local experience and professional development opportunities that were instrumental in adapting to the British healthcare system. Interestingly, 86% of participants who had also completed a four-year post-graduate specialisation programme in hospital pharmacy in Italy as post-graduate education were still required to undertake additional training and compensate for their clinical skills gaps before being able to practise in GB.

Strengths

One of the strengths of our article is its focus on a novel and underexplored topic: the education and experiences of Italian pharmacists who have relocated to GB for work. Additionally, our study revealed significant distinctions between the Italian and GB pharmacy curricula and the impact they have on the professional experiences of Italian pharmacists in GB. These findings provide insights for pharmacy education and practice, highlighting the need

for re-evaluation and strengthening of the current curriculum. Overall, our article significantly enhances the understanding of the experiences of Italian pharmacists practicing in GB and identifies key areas for further research and development of the Italian pharmacy curriculum. It potentially sets a course for Italian stakeholders—including the government, the National Conference of University Deans (NCUD), and MUR—to update the existing curriculum. This revision would align the competencies of Italian pharmacists with the clinical core competencies prevalent in more advanced pharmacy systems, such as those in the United States and Great Britain.

Limitations

Although this study is the first of its kind to focus on a cohort of Italian-qualified pharmacists and has important research objectives, certain limitations should be acknowledged. Convenience sampling was utilised due to constraints such as limited access to a broader population of Italian pharmacists, resource limitations, and the need for timely data collection. The study's sample size could have been larger to enhance the reliability of the results and enable more robust inferences about the potential factors influencing perceived challenges in a clinically oriented pharmacy setting, as is currently the case in GB. Therefore, the results should be interpreted with caution, as the representativeness of the sample to the wider Italian pharmacist population may be limited. Furthermore, our survey aimed to reach as many Italian-qualified pharmacists as possible using an online system, but we cannot be sure that everyone received the survey. In the interest of improving external validity, future research should consider recruiting a larger sample of participants to conduct, for example, a confirmatory factor analysis to ensure robust consistency of the results and broader generalisability of the study's findings.

Conclusion

This survey, which appears to be the first of its kind, has revealed that the lack of career opportunities, adequate salary, and job satisfaction in clinical-focused roles in Italy were contributing factors to moving to GB. Italian pharmacists did not feel adequately prepared for patient-centred clinical roles. Participants acknowledged an educational gap that was perceived as a barrier to their career progression as pharmacists. In fact, the majority of Italian pharmacists participating in this survey reported having to integrate their clinical knowledge and skills before practising as a registered pharmacist in GB. Therefore, many participants were required to work up to more than two years as pharmacy assistants, dispensers, pharmacy technicians, or trainee pharmacists before finding a job as pharmacist in GB or working comfortably as such.

Despite the curriculum revisions inspired by the Bologna Declaration in European Higher Education Area (EHEA) nations, the Italian pharmacy degree still emphasises more basic science courses and less patient-centred care and clinical practice compared to the GB pharmacy curriculum, which is considered the gold standard for clinical pharmacy practice in light of its PRAC course content over the total syllabus in pharmacy programmes (Arakawa et al. 2020a). The recent Italian Ministerial Decree (DM) 1147 provides recommendations for a new pharmacy degree curriculum that will empower pharmacists to provide clinical services in community pharmacies (farmacia dei servizi). Although only some of the subjects explored in our survey are included in the DM1147, this is an important step forward to ensure pharmacists have the knowledge and skills to take on more responsibilities in patient-centred care.

The outcomes of this survey suggest an urgent need to modify the current Italian university pharmacy programme to align it with recent legislation changes and provide a broader and more current foundation for future pharmacists in Italy. This study may serve as a starting point for universities, NCUD, and other stakeholders wishing to implement the recommendations included in the guidelines defined by the ministry.

List of abbreviations

CCNL	National Collective Agreement (Contratto Collettivo Nazionale)
CONASFA	Italian Professional Association of Non-Proprietor Pharmacists
CROSS	Consensus-Based Checklist for Reporting of Survey Studies
CTF	Master's in chemistry and pharmaceutical technology
EC	European Council
ECTS	European Credit Transfer and Accumulation System
EEA	European Economic Area
EHEA	European Higher Education Area
EFTA	European Free Trade Association
FIP	International Pharmaceutical Federation
FOFI	Italian Pharmacists Board (Federazioni Ordine Farmacisti Italiani)
GB	Great Britain
GPhC	General Pharmaceutical Council
HRA REC	Health Research Authority Research Ethics Service
MPharm	Master's in pharmacy
MUR	Italian Ministry of University and Research
NCUD	National Conference of University Deans (CRUI)
NHS	National Health Service
OSPAP	Overseas Pharmacist Accreditation Programme
PGEU	Pharmaceutical Group of the European Union
PRAC	Pharmacy Practice, Pharmaceutical Care, Clinical Pharmacy, Law, and Social Pharmacy Activities

PSNC	Pharmaceutical Services Negotiating Committee
SIFAC	Italian Society of Clinical Pharmacy
SIFO	Italian Society of Hospital Pharmacy and Pharmaceutical Services
SSFO	Italian Post Graduate Specialization School in Hospital Pharmacy
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
WHO	World Health Organisation

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statements

This study was conducted as a service evaluation, not constituting research per the definitions provided by typical ethics committees (Chen and Fawcett 2019). Service evaluations are designed to assess the effectiveness of a current service without modifying its delivery or affecting the entitlements of those receiving the service. In this instance, the evaluation focused on the educational programme provided by Italian Schools of Pharmacy to Italian citizens who relocated to GB to work as qualified pharmacists. The aim was to examine their perceptions, clinical knowledge, and professional experiences, thereby assessing the service's efficacy in preparing pharmacists for practice in a new healthcare system. No experimental interventions were applied; data were collected from normal educational outcomes and feedback without alteration to the existing educational service. Consequently, in line with guidance from the Health Research Authority Research Ethics Service (HRA REC) (Health Research Authority Research Ethics Service 2024), such evaluations do not require formal ethics approval as they are carried out to ascertain the quality of service provided and to inform service improvement directly.

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Author contributions

GP conceptualised the study. Material preparation, data collection and analysis were performed by GP, AM, CG, EK, OC. The first draft of the manuscript was written by GP, AM and OC, and all authors commented and reviewed previous versions of the manuscript. NA contributed by reviewing, editing, and providing comments on the current version of the manuscript, enhancing the interpretation of results and overall manuscript quality. All authors read and approved the final manuscript.

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Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author upon reasonable request.

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Supplementary material 1

Survey and informed consent

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Data type: pdf

Explanation note: Google Form administered to study participant.

Link: https://doi.org/10.3897/pharmacia.71.e139185.suppl1