Research Paper

Evaluating the feasibility and scalability of longitudinal placements for undergraduate pharmacy students in primary care

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A B S T R A C T

Introduction: To align with General Pharmaceutical Council (GPhC) standards for the initial education and training of pharmacists and enhance clinical readiness, UK undergraduate pharmacy education must provide meaningful experiential learning. This study explores the feasibility, sustainability, and scalability of longitudinal placements for final-year undergraduate pharmacy students in primary care.
Methods: Ten primary care centres hosted 115 students for one day per week on alternate weeks for 20 weeks. Students engaged in clinical audits, physical assessments, and interdisciplinary shadowing, supervised by clinical link tutors. Placement site experiences were explored through semi-structured interviews. Student experiences were evaluated using the Placement Evaluation Tool (PET).
Results: Four themes emerged from the qualitative data: placement structure and feasibility, student support and learning environment, student experience and development and service and patient impact. Sites valued the placement model but raised concerns about clinical workload, physical space, and funding. The clinical link tutor role was essential to success. Students showed increased confidence and clinical engagement, though readiness for independent practice and integration into multidisciplinary teams (MDTs) were limited. PET responses ($n = 103$, 90% response rate) indicated high student satisfaction (mean overall satisfaction score $= 8.26/10 \pm$ SD 1.79 on a 10-point scale).
Discussion: Findings align with international literature advocating longitudinal placements as a means of enhancing clinical preparedness. However, this study highlights systemic barriers to sustainability, including placement funding and infrastructure. Limitations include potential bias from selective site participation, single-institution scope, and reliance on self-reported student data. Broader adoption will require investment in supervision models, MDT training, and resource planning to support scalable.

Introduction

In the UK, the standards for the initial education and training (IET) of pharmacists have evolved to equip graduates with the skills necessary to deliver enhanced clinical care. This includes preparing pharmacists to prescribe medication independently from the first day of registration.[1] However, the structure and overall duration of pharmacy education has remained largely unchanged; comprising four years of undergraduate study followed by one-year of foundation training in the workplace. Integrated models that incorporate the foundation year into undergraduate education remain uncommon. Therefore, undergraduate programmes must optimise opportunities for students to develop clinical work-based competencies during their undergraduate degree.

Previous research has demonstrated that primary healthcare workplaces offer a rich learning environment for pharmacy trainees, supporting the development of key clinical skills such as patient assessment, clinical decision-making, communication and

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collaborative working within multidisciplinary teams.[2–5] However, most initiatives exploring pharmacy placements in primary healthcare in the United Kingdom (U.K.) have been small-scale pilots.[5] One notable exception is an NHS England-funded programme that embedded trainee pharmacists in primary healthcare during their foundation year[6] although this was a post-graduation initiative.

The feasibility of expanding such placements during undergraduate training is challenged by existing capacity constraints in primary healthcare. A report from the Royal College of General Practitioners (RCGP) emphasised the urgent need for increased infrastructure, including physical space and the availability of trained educators and supervisors.[7] These systemic limitations raise important questions about the scalability and sustainability of longitudinal placements in primary healthcare settings for undergraduate pharmacy students.

This study therefore sought to determine the feasibility of delivering longitudinal placements for pharmacy students in primary healthcare at scale across the final year of an undergraduate cohort. Specifically, the aims were to explore the following:

- The implications of longitudinal placements on workflow, staff workload, and patient care in primary healthcare settings.
- The sustainability and scalability of a longitudinal placement model in primary healthcare.
- The perceived benefits and disadvantages for placement sites hosting longitudinal placements for pharmacy students.
- Students' experiences of an extended placement in primary healthcare.

Methodology

Study design and sample

Ten primary healthcare centres were identified to host final year pharmacy undergraduate students one day per week (students attended primary care placements on alternate weeks, alternating with their secondary care placements) for 20 weeks of the academic year. Clinical link tutors, who were pharmacist educators with clinical expertise, were recruited to support the placements at each site. Funding for these roles was provided by the university. Each placement site hosted two or four groups of 5 or 6 students, with each group of students attending 10 placement days across two academic terms. A total of 115 students undertook the placement in the 2024/25 academic year. The placement design was informed by a previous pilot placement.[5] A placement handbook was developed, which included an induction guide, placement tasks and workplace-based assessment tools. Clinical link tutors worked with staff at each placement site to determine and facilitate appropriate student activities, which included undertaking audits of prescribing practices, medication safety activities, shadowing and observation of clinics run by the multidisciplinary team and student/ tutor-led clinics. Overall supervision of students' activities was provided by the clinical link tutor and supervision for individual tasks and patient interactions was delegated to members of the multidisciplinary healthcare team as appropriate. Students were also provided with the opportunity to undertake physical assessments of patients (blood pressure, pulse, respiratory rate and temperature measurement) with skills assessed by their supervisors.

Exploring placement sites' experiences of hosting pharmacy students

Phenomenology informed the exploration of the placement sites' experiences of the pilot placement as it aims to understand lived experiences both in terms of what was experienced and how it was experienced.[8,9] At the end of the academic year, following completion of the placement, semi- structured interviews were conducted with key representatives from each placement site. Semi-structured interviews were chosen as this format encourages open-ended questions that can elicit a detailed account of participants experiences leading to a more comprehensive understanding of the placement experience.[10] Seven semi-structured interviews (involving eight participants, one interview took place with two respondents from the same placement site) from seven of the placement sites were undertaken. The evaluation team, composed of academics with expertise in qualitative methods, developed an interview guide designed to explore respondents' experiences of hosting pharmacy students. Participants were encouraged to provide honest and open answers and discuss all aspects of their experience of the placement, and a conversational style of interviewing was used to encourage dialogue between the participants and researcher. Participants were aware that the interviews formed part of the placement evaluation to inform future experiential learning developments at the university. The participants provided informed consent prior to the interviews. Each interview lasted between 30 and 60 min and were conducted by members of the evaluation team (JH, MC, CR, MM) online using MS Teams. Ethical approval was obtained for the placement evaluation.

Interviews were audio-recorded and transcribed verbatim to aid qualitative analysis. Thematic analysis was conducted following Braun and Clarke's six-step approach (*1, Familiarisation with the data, 2, Generating initial codes, 3, Searching for themes, 4 Reviewing themes, 5: Defining and naming themes, 6: Producing the report*).[11] Initial analysis of the interview transcripts allowed familiarisation with the data followed by coding. Interview transcripts were coded independently by five members of the research team. Coding was undertaken iteratively, with regular discussions between coders to compare interpretations, refine codes, and agree on a final coding framework. Discrepancies were resolved through discussion until consensus was reached, rather than through calculation of inter-coder reliability statistics. On completion of coding, salient themes were identified, and a thematic framework was developed by the study team individually and then collectively reviewed. Themes were refined collaboratively by the evaluation team (JH, CR, MC, EB, CS) until definitive concepts and final interpretations were agreed. The evaluation team brought varying degrees of involvement in pharmacy education and placement design, which may have influenced data interpretation. Reflexive discussions were held throughout to recognise and minimise personal biases.

Evaluation of students' experiences

The Placement Evaluation Tool (PET) was selected to evaluate pharmacy students' experiences during their primary care placements. The PET has previously been shown to be a valid, reliable, and feasible instrument for assessing the quality of nursing clinical placements.[12] Although originally developed for nursing, the PET addresses core dimensions of clinical learning environments such as supervision quality, learning opportunities, team integration, and organisational support that are relevant across healthcare professions. At the time of study design, no validated pharmacy-specific placement evaluation tool existed that captured these broader experiential domains in primary care.

Before use, the PET was reviewed by the research team, including academic pharmacists with experience in primary care

		Rating
1	I was fully orientated to the clinical area	Likert scale (1 = strongly disagree to 5 = strongly agree)
2	Staff were willing to work with students	Likert scale (1 = strongly disagree to 5 = strongly agree)
3	Staff were positive role models	Likert scale (1 = strongly disagree to 5 = strongly agree)
4	Staff were ethical and professional	Likert scale (1 = strongly disagree to 5 = strongly agree)
5	Staff demonstrated respect and empathy towards patients/clients	Likert scale (1 = strongly disagree to 5 = strongly agree)
6	Patient safety was fundamental to the work of the unit(s)	Likert scale (1 = strongly disagree to 5 = strongly agree)
7	I felt valued during this placement	Likert scale (1 = strongly disagree to 5 = strongly agree)
8	I felt safe in the clinical environment (e.g. physically, emotionally, culturally)	Likert scale (1 = strongly disagree to 5 = strongly agree)
9	This placement was a good learning environment	Likert scale (1 = strongly disagree to 5 = strongly agree)
10	My supervisor(s) helped me identify my learning objectives/needs	Likert scale (1 = strongly disagree to 5 = strongly agree)
11	I was adequately supervised in the clinical environment	Likert scale (1 = strongly disagree to 5 = strongly agree)
12	I received regular and constructive feedback	Likert scale (1 = strongly disagree to 5 = strongly agree)
13	I was supported to work within my scope of practice	Likert scale (1 = strongly disagree to 5 = strongly agree)
14	My supervisor(s) understood how to assess my clinical abilities	Likert scale (1 = strongly disagree to 5 = strongly agree)
15	I had opportunities to enhance my skills and knowledge	Likert scale (1 = strongly disagree to 5 = strongly agree)
16	I had opportunities to interact and learn with the multi-disciplinary team	Likert scale (1 = strongly disagree to 5 = strongly agree)
17	I achieved my learning objectives	Likert scale (1 = strongly disagree to 5 = strongly agree)
18	I have gained the skills and knowledge to further my practice	Likert scale (1 = strongly disagree to 5 = strongly agree)
19	I anticipate being able to apply my learning from this placement	Likert scale (1 = strongly disagree to 5 = strongly agree)
20.	Overall, I was satisfied with this placement experience.	Overall rating on a scale of 1-10 (1 being very dissatisfied, 10 being extremely satisfied)

Fig. 1. Placement Evaluation Tool (PET) items.

education, to ensure that all items were relevant to pharmacy students. No modifications were required. However, formal psychometric validation of the PET for pharmacy students was not performed, and results are therefore reported descriptively.

The PET (Fig. 1) comprises 19 items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) and includes an overall satisfaction rating (1−10). It was administered electronically via Qualtrics at the end of the academic year, after students had completed their placements. Students were asked to indicate their placement site to enable comparisons across sites. Responses were anonymous, and no identifying information was collected. Quantitative data were exported to Microsoft Excel and analysed descriptively (mean ± SD).

Results

Placement sites' experiences of hosting pharmacy students

The interview respondents are outlined in Fig. 2.

Four inter-related themes emerged from the data: *placement structure and feasibility, student support and learning environment, student experience and development and service and patient impact.* Themes and subthemes are outlined in Fig. 3.

Placement structure and feasibility

Respondents described how hosting pharmacy students impacted on workload and added time pressures to the delivery of clinical services within the placement site. They also reflected on the long-term sustainability of the placement model.

Workload and time pressure

Respondents reported that hosting students increased time demands during clinical sessions, often resulting in backlogs and reduced efficiency. Supervising students was also reported to lengthen consultation time, which could disrupt clinical workflow when schedules were not adjusted accordingly. Time for debriefing and answering clinical questions was also felt to add particularly to GPs workload. Consensus among respondents was there is a need to reduce appointments available for patients where possible to minimise disruption to clinic workflow.

"We had to reduce [GP appointments] … by two patients just to allow time at the end for the students to ask the GPs any questions." **Respondent 8.**

"It definitely adds time to the morning and… the workload builds up…You are unable… to complete all the tasks in a timely manner as you normally would." **Respondent 1.**

Respondent 1	GP Partner*
Respondent 2	GP Partner*
Respondent 3	GP Partner*
Respondent 4	Practice pharmacist**
Respondent 5	Practice pharmacist**
Respondent 6	Practice pharmacist**
Respondent 7	Practice manager***
Respondent 8	Practice manager***

*In the UK a 'GP Partner' is self-employed general practitioner (doctor) who alongside other GPs is responsible for running a medical practice

**In the UK a 'practice pharmacist' is a pharmacist who works in a general practice (primary care setting)

***In the UK a 'practice manager' is often not medically trained and is responsible for the overall management and coordination of a general practice (primary care organisation)

Fig. 2. Interview respondents.
*In the UK a 'GP Partner' is self-employed general practitioner (doctor) who alongside other GPs is responsible for running a medical practice.
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Themes	Subthemes
Placement structure and feasibility	Workload and time pressures
	Logistical challenges
	Sustainability of placement model
Student support and learning environment	Supervision and placement facilitation
	Teaching and learning culture
	Multidisciplinary team working
Student experience and development	Perceived benefits for students
	Readiness for independent clinical practice
	Participation in service delivery and entrustment
Service and patient impact	Contribution to service delivery
	Patient involvement and experience

Fig. 3. Themes and subthemes.

"Keeping the same number of appointments and keeping the same times for those appointments had been a bit more challenging."
Respondent 4.

"So, we obviously had to give our staff catch up slots… each member of staff got two blocks… but that means missed appointments…"
Respondent 6.

"Time to debrief with GP partner…it's been really good, but obviously it's then stripped our capacity in terms of patient access…student pharmacists have definitely found that debrief…really helpful." **Respondent 2.**

Logistical challenges

Respondents highlighted that there are significant ongoing logistical challenges which threaten the success of the placement. The number of students and physical space constraints were repeatedly mentioned. In addition, most respondents highlighted their site had a lack of IT infrastructure which limited the tasks students can engage in on placement.

"We've got challenges with room spaces…Six people in a small consultation room… we have to buy another computer for the students."
Respondent 2.

"The only issue is room capacity, because we are such a large practice and a large training practice…Our rooms are rooms are quite full."
Respondent 7.

"I think that was one of the main issues that people had…. space to house the students." **Respondent 8.**

However, other respondents described a different experience.

"Our clinical admin rooms are quite large spaces. We can get all the students around one table to do presentations and we've got extra computers and resources. A lot of practices don't have that. They've just got clinic rooms." **Respondent 7.**

"We've got the space, we've got the IT, so it was never an issue." **Respondent 3.**

Sustainability of placement model

Respondents emphasised that the placement model can work at sites where there is strong staffing and planning, but wider rollout may face funding and resource barriers. It was clear that respondents felt that the model relies heavily on goodwill, and that funding and structural support is insufficient. This raised doubts about long-term feasibility. The current financial reimbursement, as provided via the NHS Clinical Tariff[13] for hosting pharmacy students, was described as disproportionately low in comparison with that received for medical students. Placement sustainability was felt to be heavily dependent on the continuation of the university funded clinical link tutor role.

"The difficulty always will be the funding side of things… They will compare it directly with medical students." **Respondent 4.**

"Goodwill is there, but… it cannot be relied upon long-term." **Respondent 1.**

"I think that it would be an absolute non-starter, unless we have the clinical link [tutor]" **Respondent 2.**

"If they were there on their own, it would have been a different dynamic. The fact they were there with their own tutor meant it was more contained and actually enhanced because their tutor was also a prescriber." **Respondent 3.**

Student support and learning environment

Respondents reflected on the support provided to students during placements and the learning environment primary care provides for pharmacy students.

Supervision and placement facilitation

Respondents reported that mentoring students is fulfilling and enjoyable, giving the opportunity to share clinical expertise despite the workload challenges it can bring. The importance of the clinical link tutor to facilitate the placement, plan student activities and provide most of the student supervision was again highlighted repeatedly.

"*It kind of gives me a little bit more variety than just doing clinics non-stop and gets me the opportunity to pass some of my experience to the students.*" **Respondent 4.**

"*It's a pleasure to spend time with them. They've all been very pleasant, very polite, really interesting and engaging.*" **Respondent 1.**

"*Clearly having the clinical link works well. Without the pharmacist, all of that workload would have gone to the GP*" **Respondent 2.**

"*The clinical link does the majority of the work with the students. I might sit in on presentations or give a short talk, but the tasks they complete, case finding, med [medication] safety audits are things I would otherwise have to do. It doesn't give me more work at all; in fact, it takes work off me. Very useful.*" **Respondent 5.**

"*The clinical link pharmacist time is certainly very valuable for us. We definitely appreciate the time and hard work that they put in.*" **Respondent 1.**

Teaching and learning culture

A number of respondents outlined that the site they worked in had a strong culture of teaching and learning and that training is a core value of the organisation. This enabled them to offer a good placement experience and learning environment for pharmacy students.

"*Oh, we love doing it, and it's nice to be part of their training.*" **Respondent 1.**

"*It's very much a training practice. Overall, we've really enjoyed it. There have also been quite significant improvements that we've been able to make together.*" **Respondent 2.**

"*We have med [medical] students and then now we've got we've expanded the in-house pharmacy team. Having pharmacy students was just like a natural progression of that and we hopefully want to build our pharmacy team in the future.*" **Respondent 5.**

"*We've always been known as quite a large training practice, so we've already built those relationships and everybody's aware of what's going on.*" **Respondent 7.**

Multidisciplinary team working

Respondents highlighted that students were able to experience working within the multidisciplinary team (MDT) to variable extents at the different placement sites. Some sites highlighted that students were able to embed into the MDT whilst others felt this was achieved to a lesser extent. At sites where this was achieved, students interacted with the wider team, both formally in clinics and informally during break times and meetings.

"*They're only here a day [on alternate weeks] but they're involved with all the team. Yeah, I think they're as involved [with the multidisciplinary team] as [much as] you can be.*" **Respondent 2**

"*It was a very difficult thing to do when you're only there for a short period of time. Embedding tends to come from building your relationships and your rapport with the staff…. I guess because they were only there for a very short period and spent time with lots of different clinicians, they were only maybe there with that person for half a day. And then they maybe never saw that person again because they moved on to another person the next time. That was quite difficult to do.*" **Respondent 6.**

"*There are clear limitations due to the fact that they don't spend time in the practice regularly, so they are probably not familiar with the members of the team. Even when they're here I spend time with them, but I always see a different one. It's very rare they spend time with the same one so. Due to the model of placement. They definitely don't develop a degree of familiarity and continuity with it.*" **Respondent 1.**

When students were supervised by members of the wider MDT, it was suggested that additional training should be provided to facilitate this.

"*When possibly nurses are involved in delivering sessions… maybe getting them to understand what the objectives are may be useful.*" **Respondent 4.**

"*So, some of my clinicians were better at teaching than others…GPs are all quite used to teaching because they teach registrars. But some of my nursing staff and my healthcare assistants don't have experience of teaching. So, I think they learned quite a lot as well. So hopefully they'll be better next time round.*" **Respondent 6.**

Student experience and development

Respondents reflected on the student experience of working in primary care for an extended period and the opportunities provided for their development.

Perceived benefits for students

Some respondents perceived that the placement model enabled students to gain broad clinical exposure and insight into the operations of primary care, largely because of the extended placement duration. In contrast, others felt that the frequency and overall length of attendance remained insufficient for students to become fully integrated into the team or to develop a deeper familiarity with the organisations operations. However, students were felt to have gained clinical realism and role awareness. All respondents felt that longer placements are significantly more impactful for student development than short, observational ones.

"Probably just getting to know general practice and how it works... just having that regular contact…. They wouldn't get as much variety [on a short placement]." **Respondent 8.**

"I would say it's been better, I think especially now with being here longer… they can obviously finish a piece of work." **Respondent 7.**

Respondents perceived that students demonstrated increased confidence and communication over the course of the 20-week (one day on alternate weeks) placement, and reported greater engagement in clinical discussions, which they interpreted as developing clinical reasoning.

"You see that gradually over time. They feel more comfortable and more confident to open these discussions with the patients." **Respondent 4.**

Readiness for independent clinical practice

Some respondents perceived pharmacy students as not yet ready for independent practice, noting a lack of autonomy and difficulty completing tasks without close supervision. Compared to other healthcare trainees, pharmacy students were seen as less prepared to practice independently.

"History taking, they seem to be already good at. If they did it in a more independent way, I'm sure it would be very formative for them. I had expected at this level to take a history independently." **Respondent 1.**

"I expected them to be able to work independently. Our [GP] registrars are able to sort of see patients independently, which we found that our pharmacy students weren't…We generally found that they weren't competent enough to do a consultation on their own. So quite often staff had to intervene during the consultation, and they weren't able to complete one on their own." **Respondent 6.**

Participation in service delivery and entrustment

Respondents considered how students could participate in service delivery and entrustment. It was felt that students were still predominantly observing rather than actively participating in service delivery and there remains a hesitation among students to engage. Clinical link tutors were supporting students to be entrusted to carry out some lower-complexity tasks for example prescribing safety audits, hypertension case finding clinics (involving patients over 40 years old who have not had a blood pressure measurement in the previous 5 years) and actioning medication safety alerts to safeguard prescribing safety.

"That's an interesting one because I think I'd probably be more trusting than I thought I was allowed to be at the beginning" **Respondent 6.**

"The students are left to do their audits…then I have a discussion with them [clinical link tutor] …… then give feedback." **Respondent 5.**

Service and patient impact

Respondents considered how student placements in primary care can be beneficial to the organisation and patient care.

Contribution to service delivery

Respondents articulated that student placements can be beneficial to the organisation and patient care. It was felt that students brought new ideas and could be used as a resource to improve systems within the organisation. This contribution included audits and medication safety. Though some meaningful activity was undertaken by students, respondents felt that there was scope for students to move beyond project-based work such as prescribing/medication safety audits. Suggestions included handling queries and other more clinical activities. In some cases, working with their clinical link tutor, students helped to fill gaps in service.

"I think it's definitely been a positive thing… they've got different kind of thoughts and ideas…They've also done amazing work on the DOAC [anticoagulant monitoring] … we're like, literally, as up to date as you can get." **Respondent 2.**

"They could deal with simple requests and pass on to more experienced colleague." **Respondent 1.**

"It helped us get our hypertension patients in because our healthcare assistant was off." **Respondent 8.**

"They could just be getting involved in the normal pharmacist work, like queries, questions, documents, and obviously they've got the clinical link there to help them. So do more of the day-to-day kind of practice work, rather than, project work." **Respondent 2.**

Patient involvement and experience

Respondents outlined that patients are familiar with having students engaged in activities and service delivery, particularly in organisations which deliver training to a range of healthcare professionals.

"Patients are just so used to students being everywhere within the practice at all times." **Respondent 2.**

"Feedback from patients has always been positive." **Respondent 1.**

"*The vast majority seem to be happy [with students], and we didn't have any negative comments about them being in because we're a teaching practice.* **Respondent 6.**

Students' experiences of the primary care placement

A total of 103 out of 115 students completed the PET (response rate of 90%).

Fig. 4 outlines the mean PET scores for each item. Student feedback on placement experiences was positive overall. When combining student responses from all 10 sites, mean scores across all 19 PET items ranged from 4.05 to 4.58 on a 5-point scale, indicating strong agreement with positive statements about orientation, supervision, safety, and learning opportunities. The highest ratings were for *patient safety* (mean = 4.58), *support from supervisors to identify learning needs* (4.57), and *respect and empathy towards patients* (4.56), reflecting consistently high-quality learning environments. Slightly lower means were observed for *orientation to the clinical area* (4.19) and *opportunities to engage with the multidisciplinary team* (4.05), suggesting areas for improvement.

Overall satisfaction with placements was high (mean = 8.26 ± 1.79 on a 10-point scale), reinforcing that students generally found

PET question (Likert scale 1 Strongly disagree - 5 Strongly agree)	All 10 GP sites	
	Mean	± SD
1: I was fully orientated to the clinical area	4.19	1.02
2: Staff were willing to work with students	4.34	0.99
3: Staff were positive role models	4.44	0.80
4: Staff were ethical and professional	4.52	0.83
5: Staff demonstrated respect and empathy towards patients/clients	4.56	0.81
6: Patient safety was fundamental to the work of the unit(s)	4.58	0.82
7: I felt valued during this placement	4.13	1.03
8: I felt safe in the clinical environment (e.g. physically, emotionally, culturally)	4.55	0.74
9: This placement was a good learning environment	4.35	0.97
10: My supervisor(s) helped me identify my learning objectives/needs	4.57	0.82
11: I was adequately supervised in the clinical environment	4.48	0.76
12: I received regular and constructive feedback	4.37	0.86
13: I was supported to work within my scope of practice	4.30	0.83
14: My supervisor(s) understood how to assess my clinical abilities	4.43	0.84
15: I had opportunities to enhance my skills and knowledge	4.35	0.89
16: I had opportunities to interact and learn with the multi-disciplinary team	4.05	1.17
17: I achieved my learning objectives	4.41	0.80
18: I have gained the skills and knowledge to further my practice	4.34	0.90
19: I anticipate being able to apply my learning from this placement	4.38	0.77
Overall		
Overall, I was satisfied with this placement experience.	8.26	1.79

Items 1-19 are rated on a likert scale (1 = strongly disagree to 5 = strongly agree).
Overall rating on a scale of 1-10 (1 being very dissatisfied, 10 being extremely satisfied).

Fig. 4. Mean and standard deviation (± SD) of PET survey scores across 10 sites, n = 103 pharmacy students.
Items 1–19 are rated on a likert scale (1 = strongly disagree to 5 = strongly agree). Overall rating on a scale of 1–10 (1 being very dissatisfied, 10 being extremely satisfied).

their placements to be supportive, safe, and conducive to learning. 27 students (26.21%) reported being extremely satisfied (10/10), while an additional 71 students (68.93%) rated their experience between 6 and 9 out of 10. No students reported being very dissatisfied, and only 6 students (5.82%) indicated dissatisfaction giving scores between 2 and 4.

Fig. 5 presents site-level mean PET scores for each item and is intended to provide a descriptive overview of variability in student experiences across placement sites. Formal statistical comparisons between sites were not conducted due to small student numbers per site, limiting the appropriateness and interpretability of inferential analysis. Sites C, G, H, I, and J consistently achieved the highest ratings (means for PET items in range 4.30–4.80, 4.70–4.90, 4.10–4.80, 4.25–5.00, 4.33–5.00 respectively) with low standard deviations, suggesting both high satisfaction and consistency in student experiences. Sites B, D, and E also performed well (means for PET items in range 4.15–4.60, 3.67–4.83, 4.41–4.57 respectively). In contrast, Site F reported notably lower mean scores (2.22–4.22) and a considerably lower mean overall satisfaction score (4.22 ± 2.39 on a 10-point scale), indicating more variable and less positive experience among students placed at that site.

Discussion

This study explored the perspectives of placement sites and experiences of pharmacy students undertaking longitudinal placements in primacy care settings. Longitudinal placements are defined as involving "a regular, recurrent placement in the same setting with the same supervisor over a period of time" and previous studies have shown that they can provide enhanced opportunities for curriculum integration and professional engagement.[3,14] The positive student satisfaction scores in this study align with previous research[2–4] indicating that longer and more immersive placements in primary care can provide supportive and engaging learning environments, with high-quality supervision, meaningful learning opportunities, and effective integration into clinical teams. Exploration of placement site experiences in this study highlighted the perceived value of these placements to student learning and showed that students can contribute to some aspects of service delivery. This provides further evidence to support longitudinal placements over short-term observational ones[3,4] particularly as pharmacy education continues shifts towards greater experiential learning in undergraduate training in response to the General Pharmaceutical Council (GPhC) standards published in 2021.[1] However critical questions were also raised about long-term sustainability and full integration into the multidisciplinary team.

This study identified barriers pharmacy students face to fully participating in clinical service delivery when compared to other professional groups in training. Limited readiness for independent practice was raised as a concern, reflecting the broader challenges around early-stage clinical autonomy in pharmacy curricula.[15] Although the placement model was generally well-received by placement site representatives it was seen to rely heavily on goodwill, available space and robust supervision, primarily provided by the university-funded clinical link tutors. The role of the clinical link was central to success, with many respondents noting that without this support, placements would be unsustainable. This finding echoes concerns raised around the fragility of arrangements for placement provision in undergraduate pharmacy education, with financial viability a key area of concern.[16] Respondents expressed frustration that pharmacy placements received significantly lower NHS funding compared to medical student placements. Without adequate reimbursement and sustained infrastructure investment, primary healthcare placement sites may become reluctant to

PET question (Likert scale 1 Strongly disagree - 5 Strongly agree)	Site A (Mean ± SD) n= 8 students	Site B (Mean ± SD) n = 20 students	Site C (Mean ± SD) n= 10 students	Site D (Mean ± SD) n= 12 students	Site E (Mean ± SD) n= 7 students	Site F (Mean ± SD) n= 9 students	Site G (Mean ± SD) n= 10 students	Site H (Mean ± SD) n= 10 students	Site I (Mean ± SD) n= 8 students	Site J (Mean ± SD) n= 9 students
1: I was fully orientated to the clinical area	3.63 ± 1.69	4.40 ± 0.60	4.50 ± 0.53	4.50 ± 0.52	4.14 ± 0.69	2.78 ± 1.48	4.70 ± 0.48	4.20 ± 1.03	4.25 ± 1.39	4.33 ± 0.50
2: Staff were willing to work with students	3.75 ± 1.75	4.40 ± 0.68	4.70 ± 0.48	4.25 ± 0.62	4.57 ± 0.53	2.56 ± 1.33	4.80 ± 0.42	4.50 ± 0.53	5.00 ± 0.00	4.78 ± 0.44
3: Staff were positive role models	3.75 ± 1.75	4.45 ± 0.60	4.70 ± 0.48	4.42 ± 0.51	4.57 ± 0.53	3.44 ± 0.88	4.80 ± 0.42	4.60 ± 0.52	4.75 ± 0.46	4.78 ± 0.44
4: Staff were ethical and professional	3.75 ± 1.75	4.60 ± 0.94	4.70 ± 0.48	4.50 ± 0.52	4.57 ± 0.53	3.78 ± 0.83	4.80 ± 0.42	4.60 ± 0.42	4.75 ± 0.46	4.78 ± 0.44
5: Staff demonstrated respect and empathy towards patients/clients	3.75 ± 1.75	4.55 ± 0.94	4.70 ± 0.48	4.58 ± 0.51	4.57 ± 0.53	4.00 ± 0.87	4.90 ± 0.32	4.80 ± 0.42	4.88 ± 0.35	4.78 ± 0.44
6: Patient safety was fundamental to the work of the unit(s)	3.88 ± 1.81	4.60 ± 0.94	4.60 ± 0.70	4.83 ± 0.39	4.43 ± 0.53	3.89 ± 0.78	4.90 ± 0.32	4.80 ± 0.42	4.88 ± 0.35	4.78 ± 0.44
7: I felt valued during this placement	3.63 ± 1.69	4.20 ± 0.89	4.40 ± 0.70	4.08 ± 0.79	4.29 ± 0.49	2.56 ± 1.33	4.70 ± 0.48	4.00 ± 0.82	4.75 ± 0.46	4.56 ± 0.53
8: I felt safe in the clinical environment (e.g. physically, emotionally, culturally)	3.75 ± 1.75	4.55 ± 0.60	4.60 ± 0.70	4.67 ± 0.49	4.43 ± 0.53	4.22 ± 0.67	4.70 ± 0.48	4.80 ± 0.42	5.00 ± 0.00	4.67 ± 0.50
9: This placement was a good learning environment	3.88 ± 1.81	4.50 ± 0.61	4.70 ± 0.48	4.33 ± 0.49	4.57 ± 0.53	2.67 ± 1.41	4.70 ± 0.48	4.40 ± 0.70	4.88 ± 0.35	4.67 ± 0.50
10: My supervisor(s) helped me identify my learning objectives/needs	4.00 ± 1.85	4.60 ± 0.94	4.30 ± 0.67	4.75 ± 0.45	4.43 ± 0.53	4.22 ± 0.97	4.90 ± 0.32	4.50 ± 0.53	4.88 ± 0.35	5.00 ± 0.00
11: I was adequately supervised in the clinical environment	3.75 ± 1.75	4.40 ± 0.68	4.80 ± 0.42	4.67 ± 0.49	4.29 ± 0.49	4.00 ± 0.87	4.70 ± 0.48	4.50 ± 0.53	4.88 ± 0.35	4.67 ± 0.50
12: I received regular and constructive feedback	3.50 ± 1.69	4.20 ± 0.95	4.50 ± 0.71	4.67 ± 0.49	4.29 ± 0.49	3.78 ± 0.83	4.80 ± 0.42	4.30 ± 0.67	4.88 ± 0.35	4.78 ± 0.44
13: I was supported to work within my scope of practice	3.63 ± 1.69	4.15 ± 0.75	4.40 ± 0.70	4.50 ± 0.52	4.43 ± 0.53	3.67 ± 0.87	4.80 ± 0.42	4.10 ± 0.74	4.75 ± 0.46	4.67 ± 0.50
14: My supervisor(s) understood how to assess my clinical abilities	3.50 ± 1.60	4.30 ± 0.98	4.40 ± 0.52	4.58 ± 0.51	4.57 ± 0.53	4.00 ± 1.00	4.70 ± 0.48	4.60 ± 0.52	5.00 ± 0.00	4.67 ± 0.50
15: I had opportunities to enhance my skills and knowledge	3.75 ± 1.75	4.35 ± 0.67	4.60 ± 0.52	4.25 ± 0.75	4.29 ± 0.49	3.44 ± 1.51	4.80 ± 0.42	4.40 ± 0.52	4.88 ± 0.35	4.67 ± 0.50
16: I had opportunities to interact and learn with the multi-disciplinary team	3.13 ± 1.64	4.20 ± 1.06	4.60 ± 0.52	3.67 ± 0.89	4.29 ± 0.76	2.22 ± 1.48	4.70 ± 0.48	4.30 ± 0.95	4.88 ± 0.35	4.33 ± 0.50
17: I achieved my learning objectives	3.88 ± 1.81	4.40 ± 0.75	4.50 ± 0.53	4.33 ± 0.49	4.43 ± 0.53	3.78 ± 0.97	4.80 ± 0.42	4.40 ± 0.52	5.00 ± 0.00	4.56 ± 0.53
18: I have gained the skills and knowledge to further my practice	3.75 ± 1.75	4.30 ± 0.98	4.50 ± 0.53	4.42 ± 0.51	4.29 ± 0.49	3.44 ± 1.24	4.80 ± 0.42	4.30 ± 0.67	5.00 ± 0.00	4.56 ± 0.53
19: I anticipate being able to apply my learning from this placement	3.75 ± 1.75	4.45 ± 0.60	4.50 ± 0.53	4.50 ± 0.52	4.14 ± 0.38	3.78 ± 0.83	4.70 ± 0.48	4.30 ± 0.67	5.00 ± 0.00	4.44 ± 0.53
20: Overall, I was satisfied with this placement experience.	8.88 ± 0.99	8.5 ±1.24	8.70 ± 0.95	8.33 ±1.07	8.43 ± 1.27	4.22 ± 2.39	9.20 ± 0.92	8.10 ± 1.52	9.13 ± 0.83	8.89 ± 1.05

Items 1-19 are rated on a likert scale (1 = strongly disagree to 5 = strongly agree). Overall rating on a scale of 1-10 (1 being very dissatisfied, 10 being extremely satisfied). Data are presented descriptively to illustrate variability in student experience across sites; inferential statistical comparisons were not conducted due to small sample sizes per site.

Fig. 5. Mean (± SD) PET item scores by placement site.
Items 1–19 are rated on a likert scale (1 = strongly disagree to 5 = strongly agree). Overall rating on a scale of 1–10 (1 being very dissatisfied, 10 being extremely satisfied). Data are presented descriptively to illustrate variability in student experience across sites; inferential statistical comparisons were not conducted due to small sample sizes per site.

continue hosting pharmacy students, threatening the scalability of the initiative. This study did however showcase how pharmacy students can tangibly contribute to primary care organisations through tasks such as audits, medication safety reviews and student-led clinics, which if further built upon may provide some additional incentive for placement sites to engage in pharmacy undergraduate education.

While overall student satisfaction with the placements was high, PET data highlighted some variability in student experiences across sites, particularly at Site F. Interpretation of these differences is limited by the absence of student demographic data and detailed site-level characteristics which precluded quantitative explanation of between-site variation. Clinical link tutor support was intentionally standardised across all sites, and additional resources (primarily IT access) were provided where required to promote consistency in learning opportunities. Exploration of the experiences of placement providers provide some indication that variability of student experience between sites may reflect contextual and cultural factors such as the extent of multidisciplinary team engagement, staff familiarity with supervising pharmacy students, and the degree to which students could be embedded into routine clinical workflows. These findings underscore that placement quality is shaped not only by structural resources but also by organisational readiness and educational culture.

Limitations

Although ten placement sites participated in the programme, only seven sites contributed to the final qualitative evaluation. The three non-participating sites were affected by staffing and capacity pressures: one site withdrew from the placement model, while two sites remained engaged but were unable to provide a staff representative during the study period. As a result, perspectives from sites experiencing the greatest operational strain may be underrepresented, which could affect the generalisability and scalability of the placement model.

Placement sites were recruited based on existing engagement with medical and nursing student training, meaning respondents may have been more invested in teaching and student support, potentially introducing selection bias.

The study used the PET, originally validated in nursing students, which has not been formally psychometrically tested in pharmacy populations. While it captures generic aspects of clinical placement quality relevant across healthcare disciplines, profession-specific learning outcomes may not be fully represented. Site-level quantitative comparisons were limited by small student numbers per placement, precluding meaningful inferential analysis.

Student development was not evaluated in this study through any objective competency measures. Consequently, findings related to student development should be interpreted as perceived learning gains rather than demonstrated competence. Future research should incorporate validated competency assessment frameworks to more robustly evaluate clinical performance and readiness for practice.

While thematic analysis was conducted rigorously, researcher positionality, particularly involvement in placement design and delivery, may have influenced interpretation of qualitative data despite reflexive discussions.

Finally, the study was conducted with students from a single higher education institution, which may limit the generalisability of findings to other pharmacy programmes with different structures, support models, or student populations.

Conclusion

This study demonstrates that embedding pharmacy students in primary care is feasible and that pharmacy students value the primary care placement experience and can make service contributions. However, the long-term sustainability of this model is heavily dependent on sufficient funding, physical infrastructure, and ongoing institutional support. The clinical link tutor role was essential to both operational success and educational quality, functioning as the primary point of coordination between students and placement sites, however long-term funding for these roles is not assured. Addressing these challenges will be critical to expanding undergraduate pharmacy placements in primary care and maximising their educational value. To our knowledge, this is one of the largest-scale evaluations of UK-based pharmacy student placements in primary care settings and, as such, offers novel insights into both the operational and educational aspects of this model of clinical education.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used ChatGPT and MS CoPilot in order to improve readability and clarity of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

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Declaration of competing interest

The authors declare that there are no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cptl.2026.102606.

Data availability

Data available on request.

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