International Journal of Pharmacy Practice, 2024, **32**, 316–321
https://doi.org/10.1093/ijpp/riae023
Advance access publication 30 May 2024
Research Paper

IJPP International Journal of Pharmacy Practice

OXFORD

Undergraduate pharmacy students' perceptions and experiences of a student-led clinic providing preventative services

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Abstract

Objectives: Authentic work-based learning is crucial to facilitate the development and preparedness for training healthcare professionals. Such experiences are challenging to design and secure within the clinical environment. One School of Pharmacy established a student-led clinic to provide undergraduate pharmacy students the opportunity to practise physical assessment and communication skills with members of the public. The aim of this study was to explore students' thoughts and perspectives on this experience.

Methods: Undergraduate students were invited to participate in a semi-structured interview after their clinic experience. Transcriptions of the interviews were analysed by reflexive thematic analysis.

Results: Twelve students agreed to an interview that took place between October and December 2022. Three themes were identified from the qualitative data which related to external factors that influenced student experience of the clinic, for example, organizational issues and impact of the physical environment; interactions within the clinic environment; and internalized learning for example, professional growth and development, and the appreciating the learning opportunity.

Conclusions: In the current climate, where securing valuable work-based learning opportunity is challenging, student-led clinics offer an environment that is well-received by students and appears to facilitate student professional development. Student clinics are receiving more attention and investment across undergraduate healthcare programmes around the world given advantages such as these. However, they need to be well integrated and structured into the existing training and education and students need appropriate induction to prepare them for the experience and manage expectations.

Keywords: health checks; public health; cardiovascular disease; student-led clinic; primary health care

Introduction

In many countries, undergraduate pharmacy degree programmes are accredited by regulatory bodies, for example, in the UK, this is the General Pharmaceutical Council (GPhC) [1], in Australia, this is the Australian Pharmacy Council [2], and in the USA, this is the Accreditation Council for Pharmacy Education [3].

The GPhC in the UK sets out the standards and learning outcomes to be met for the initial education and training of pharmacists. In 2021, revised standards were issued that stipulate the requirement for the education and training to support students and trainees to become independent prescribers [4]. This means that those students graduating from 2026, will be entering the workforce with the annotation of independent prescriber and accompanying rights and responsibilities.

This is a significant development for the education and training of pharmacists, one which requires higher education institutions and onward training providers to ensure appropriate, high-quality teaching, learning, training, and assessments that support the development and opportunity to demonstrate and evidence the necessary knowledge, skills, and behaviours that underpin safe and effective prescribing. Students and trainees are expected to meet many of the learning outcomes that underpin prescribing at the 'shows how' or 'does' level of Miller's triangle [4]. This emphasis on prescribing and clinical practice means there is a greater need for work-based learning opportunities within the undergraduate curriculum to ensure students can practise their skills and to demonstrate their competence at the required level to be workforce-ready.

Placements in the clinical environment are a challenge to secure [5]. This is due to many factors including a workforce managing unprecedented demand post-COVID 19, competition for placements with other healthcare trainees, increase in student numbers in healthcare programmes, lack of infrastructure, resource, and professional culture to support the training and development of students [6]. This has been conventionally observed in medical education; however, this is an increasing problem in the education and training of undergraduate pharmacy students given the recent revised standards from the GPhC [4].

One UK School of Pharmacy has developed and established a student-led cardiovascular and healthy lifestyle clinic to provide a placement opportunity for students to practise

Received: 7 November 2023 Accepted: 9 May 2024

and demonstrate their developing competencies to support prescribing. Our previous work describes the initial pilot of this clinic [7]. Our subsequent evaluation of service users has demonstrated the opportunity to provide a valuable service to the local populations with positive results [8]. This study aimed to explore the perceptions and experiences of the undergraduate pharmacy students running and providing the service through the clinic.

Methods

This is a qualitative study employing semi-structured interviews to achieve the study's aim. The Consolidated Criteria for Reporting Qualitative Research (COREQ) [9] have been used to inform the reporting of this work, and the completed checklist is included in the supplementary information.

Theoretical framework

This study employs a phenomenographic approach to explore and analyse students' experiences and perceptions of the clinic [10]. Phenomenography is the empirical study of the different ways in which people experience, conceptualize, realize, and understand various aspects of a phenomenon. This approach is particularly helpful in educational research because the way different students experience a phenomenon, that is, what they describe as their focal awareness, can be helpful in designing and facilitating student preparation, supervision, and reflection after the learning event [10].

Setting

Students in year 3 of the 4-year undergraduate Masters of Pharmacy (MPharm) programme attended pre-placement training and briefing in September 2022. Students then attended five sessions in the student-led clinic in groups of five to six students, where each session was 3 h long, across the 2022–23 academic year. Students were supported in their clinic sessions with an on-site clinical supervisor (a qualified pharmacist) who provided briefing and debriefing for each session.

The clinic was provided in a city centre location as described in our previous work [7]. Students provided the following services: blood pressure measurement, point-of-care total cholesterol and random or fasting glucose testing, measurement of height and weight to calculate body mass index, and healthy living and lifestyle advice where appropriate.

Participant recruitment

All students providing the clinic during October to December 2022 (n = 51) were sent a participant information sheet and consent form as an invite to participate in a semi-structured interview. Those students who returned the completed consent form and provided preferred contact details were followed up for an interview. As such, a convenience sampling approach to participation was adopted.

Data collection

An interview topic guide was developed and informed by a similar study conducted by Kavanagh *et al.* (topic guide included in supplementary information) [11] Authors had also conducted interviews with undergraduate pharmacy students about their experience of student-led clinics within an Irish context. Common themes from the analysis included: organizational issues, professional development/growth, and relationships [11]. These themes were used to frame the topic guide prompts to allow students to share their thoughts without rigidity to answer questions. The discussion involved open questions around the clinical tasks, the clinic environment, and other factors contributing to their experience. Interviews were audio-recorded with consent and transcribed verbatim.

Data analysis

Transcripts of the audio recordings were subject to reflexive thematic analysis following the six steps described by Braun and Clarke [12]. A concept map was developed during the analysis to identify and map out relationships of concepts within and between interviews and capture deviant findings (supplementary information). The codes within the concept map depict the thematic field and the themes are the points of focal awareness as generated from the interview transcripts. PS and HN individually coded the first two transcripts and met to discuss initial codes and thoughts and a general analytical approach. PS then continued to code the remainder of the manuscripts.

PS as the researcher undertaking data collection and analysis was an undergraduate student themselves and was a near-peer to the interview participants. This facilitated engagement and rapport building with the interviewees, however, may have introduced bias in the approach to questioning and analysing the data. Approaches to minimize this were through journaling thoughts and perceptions during data collection and analysis and weekly discussions with the wider research team. The coding process and steps of interpretation were iteratively considered and reviewed by the research team to enhance transparency and credibility of the findings. Institutional ethical approval was granted for this study.

Results

Twelve students provided informed consent to partake in the interviews. These were conducted in person during October to November 2022 and lasted 23 min ± 5 min. Seven participants identified as female and the remainder identified as male, all were aged between 19 and 22 years old.

Data saturation where no new codes were identified occurred after the first eight transcripts. The codes were grouped into three themes. These related to external factors that influenced the student experience of the clinic, including organizational issues and impact of the physical environment; interactions within the clinic environment; and those that related to internalized learning such as professional growth and development, and appreciating the learning opportunity.

Student experience of the clinic

Students were keen to share their thoughts on the organization of the placements. They reported that the length of time (3 h) per session was appropriate to engage with a good number of members of the public for a reasonable amount of time per consultation and without feeling rushed.

> I think the length of time we're here for is quite good. Three hours gives you time to see plenty of different patients and spend a good amount of time with each patient if they're not in a rush.

Similarly, the frequency of the placements with sessions running fortnightly was received positively by students.

> I think having it every other week rather than every week makes you look forward to it.

However, students found that navigating an external timetable to their university app was cumbersome and confusing. Students relied on their university app to inform them of their other lectures, seminars, and teaching sessions, so were frustrated with having to access a separate spreadsheet to identify their allocated sessions.

> I find that the organisation has been great. It is not ideal that the app's timetable is wrong, but all our placements haven't been on the app from the start of the year.

Despite this, students were generally positive about the environment of the clinic. They observed that the location was accessible to a large population of the local community, particularly because of the central city location.

> The location allows us to reach people who have lived in the city for years from many different backgrounds.

> It feels like one of those places in Newcastle that is a convergence for everyone.

However, students shared some concerns about the physical space, which is used by other service users across a given week. Students thought the space lacked the 'look' and 'feel' of a professional, clinical environment. There were some issues with where and how equipment was stored and organized in between sessions that caused issues in setting up and knowing where everything was.

> …it could be organised a bit more. I know it's a shared space but just make it easier for equipment to be located.

Equally, students appeared to describe a perspective that the space and setting up the clinic for each session was not a priority for them or something they saw as part of their role.

> …everything's usually there on a table, ready for us. It's when we haven't got enough equipment and don't know where things are, is when it becomes a problem.

Students also reflected that during busy times, when both consultation stations were occupied with service users, it felt disorganized with insufficient space or the need to share equipment across the stations. This was perceived to be less than ideal for students and the people accessing the service.

> Two groups will be standing outside trying to recruit, and you can have a patient with you, and they'll be asking 'how long is it going to be?' And we don't know because the times needed to carry out the clinical tasks can vary, and only having two blood pressure monitors doesn't help the situation. So, it's a bit more challenging trying to figure out the right amount of people to have waiting, also when and how many people to bring into the clinic

A further vocalized issue was that better advertising of the clinic offer would have reduced the need to try and convince people to access the clinic service.

> It would be a lot handier if we just have appointments in the diary, or even just sitting in the room waiting for someone that way…I think if they market it better, with more signage around the market and reach out to local pharmacies to refer people to us, we will have a better turnout and people would be more aware of the service.

Internalized learning experience

Students reflected on realizing what they knew from having the opportunity to apply their knowledge into practice. This showed insight and mature reflection on the learning from the experience.

> …if the blood pressure or another reading is high, we know how to act on that and we know what advice we can give. So, it's good that we can apply what we've learned…

> I enjoy the challenges we face. I like this environment as there's always someone here. It's like a step in between being and acting as a real-life pharmacist in a community and practising during the OSCEs [objective simulated clinical examinations], and clinical skills [simulation sessions].

Some of this learning was impactful as it involved making mistakes within the clinic and then developing as a consequence.

> We could have just done training videos … but being here and doing this is much better. For me, making mistakes in the first session … I wouldn't have understood that watching a screen. I learnt it because I made a mistake here and learned from them.

Many students described the significance of being entrusted to engage and actively provide a student-led service to real-life patients as a profound opportunity.

> I feel like this is the most formal clinical environment we've been in, where we take charge … I feel it is preparing us for when we graduate.

However, some students did articulate a desire for more preparatory training in terms of practising the skills they required in a simulated environment, prior to the sessions in the clinic.

> I think we could have had a mini clinical skills session where we could practise all the tasks.

Students reported that the clinic was providing them with ample practice for both their practical consultation and communication skills.

> …the communication part is quite good because you never know what you'll get. That's an important skill set needed, especially because we're dealing with real-life situations.

> A lot of people don't like blood … but being here we can learn how to have those conversations with patients…

However, there was some frustration from students who had to engage with passers-by to promote the clinic and invite people for a consultation.

> It just feels like they've [the university] made this opportunity, but they're not telling the community about it. It's OK us going out and telling people about it, but if they put a sign outside each entrance of the market, it would do wonders to the outcome we [students] get.

This was not perceived to be educationally valuable to the students who were more focussed on practising their skills within the scaffold of the health check consultation.

> We would have had more time to spend practising our communication and clinical skills with the patients.

The opportunity to practise on patients meant students felt they could develop their ability to perform the skills, but they also felt more confident conducting the activities.

> It's definitely helping develop my confidence.

Working in the clinic, for some students, also had positive learning around professional identity and promoting the profession.

> I think it's made me realise how hands on the pharmacy role can be.

Further wider elements of professional identity and values development were shared by students around civic duty and community wellbeing.

> I feel like the placement is what it is intended to be. To be here for the public. I think it's achieved what it was set out to achieve.

> being able to provide this service to people feels good that we can give back to the public.

Students also described that the clinic served as an opportunity to promote wider pharmacy services.

> There have been a lot of people who come in here and say, 'oh I didn't know you did this as well!' … they probably think pharmacists only work with drugs behind a counter so it's good we can help people whilst changing what the public think about pharmacy.

> I felt like we are carers for the community focusing on more than just the medications and the readings…I feel that we are here to get the stuff that they're not necessarily telling the GP … and we can give them advice on that.

Interactions in the clinic

Students agreed that the support they received from the university academic supervising their session greatly impacted their experience. Students appreciated the supervisor answering questions, quizzing the students on different medications and scenarios they had come across in the clinic. They also reflected that the supervisor's hands-off approach allowed them to build confidence through independently carrying out clinical tasks.

> Our supervisor is quite good at asking us questions and quizzing us on different things we talk to patients about.

In converse to other comments about the supervisory support, one student did describe a desire to get more personalized feedback from direct observation on their clinical and procedural skills.

> It'd be nice to get feedback on how you do on the clinical stuff, like blood glucose and cholesterol readings. Just to make sure it's all correct.

Students also recognized the wider supervision and feedback provided by scaffolded seminars around placement sessions.

> Our clinical supervision seminars [debriefing seminars] … everyone talks about their patients and then we give feedback … it's good because you get to hear about everyone else's experiences, and you learn from that as well.

Students described their experiences interacting with users of the clinic. Generally, these were positive, where members of the public were happy to help students in their training, they were cooperative and friendly.

> …if they come in just to be nice, … we still get to practise our skills…

The students perceived that some patients valued the service on offer, regardless of if they recognized they were also helping students learn.

> So many of the patients are just so grateful for what we are doing; it's a really nice feeling.

In some instances, students experienced some negative interactions with members of the public for which they reported feeling unprepared.

> We can get very eager patients to come in, but you can also get rude people. You people who can be difficult, especially if they agree to use the service, but because there's already a lot of people, they walk away.

Similarly, in some instances, interactions were not so negative but perhaps not what the students had expected in terms of working within a community support space where some service users wanted social interaction rather than specific health information.

> Some of the people we see, you can tell they just want a person to talk to … so even though we are doing these health checks, we're also like a hub for people, especially elderly people.

This was identified as an area for which students could have been more prepared prior to starting the placement.

> …some sort of guidance as to how to be more empathetic in relaying that information [e.g., bad news, like having a

> BMI indicating obesity] … how do we address that in a professional way? … in a way not to offend the patient, and not seem insensitive.

Students also described the experience of working with their peers, from the same profession, but also with students from other professions who had joined some of the clinic sessions in an interprofessional education capacity.

> We [different professional students] do learn from each other because …. We all learn different things. They just know different things that they can teach us, and we teach them things.

This involved both learning what other professionals do, but also students described reflecting on how this compares to pharmacy and their own approach suggesting a sense of shared learning.

> We've had a lot of medic students with us … being with other professionals from different course I think has been a massive eye opener. Just seeing what they pick up on, that we would normally ignore has been interesting.

> They [medical students] know different bits to us … things that we could use in our consultation approach.

Discussion

Undergraduate pharmacy students have valued their work-based learning experience within a student-led cardiovascular and healthy lifestyle clinic. However, the placement was not well integrated into the student timetable which caused frustration. The physical environment was considered appropriate to reach a diverse range of people, but the clinic was felt to lack a professional appearance. The students described positive interactions with supervisors, other students and with members of the public. They particularly enjoyed learning with, about and from other healthcare professional students in the clinic. However, the need to go out and recruit members of the public into the clinic was not well-received and students did not perceive this as educationally valuable and would have preferred an appointment-based system. Students reflected that the placement allowed them to build their confidence in consultations and physical skills and provided an opportunity to understand their future role as a pharmacist. Students appreciated that they were contributing back to the local population and enjoyed this civic duty. The placement was valuable for students to apply their knowledge and practise their skills in a real-life situation, including learning from mistakes. Students were able to reflect on where they felt unprepared or deficient in skills, calling for more preparatory sessions and personal feedback.

The limitations of this work are that the interview participants were self-selecting. It would have been better to undertake interviews with a random sample of students to potentially capture a wider range of views and opinions. Following the interviews with a survey distributed to all students participating in the clinics would have provided some insight about how widely these perceptions and experiences are shared amongst the cohort.

Recent work examining the value of student-run clinics has reported that these learning environments are uniquely positioned to improve understanding of patient experience, greater patient centredness, enhanced understanding of the holistic approach to patient care, and improved skills and attitudes related to interprofessional collaboration and teamwork [13]. Similarly, a recent rapid review on student outcomes from interprofessional student-led clinics identified benefits including (a) understanding of own role and scope of practice; (b) understanding of the role and scope of practice of other professions; (c) individual benefits to the students; (d) impact on patient-centred care; and (c) understanding of how to work in an interprofessional team [14].

Students more negative reflections in this study pertained to activities or interactions that students had not been expecting (e.g. some of the reactions of members of the public) or did not perceive as useful (e.g. preparing the clinical environment and managing the workflow). Cognitive load theory outlines three sources of cognitive load associated with any given task that contribute to working memory capacity: intrinsic (load directly associated with the task); extraneous (external to the task); and germane (associated with the storage of knowledge itself). It is postulated that if total cognitive load exceeds the working memory capacity of a student, this will have a detrimental impact on both learning and performance [15]. Despite students relating poor perceptions of extraneous load, this does not appear to have a subsequent negative effect on ability to perform the task. This is reassuring as it indicates that the environment and context do not overly challenge the students to hinder the opportunity to practice and learn. On the other hand, the benefit of this extraneous load means that students are required to perform a professional activity in an environment that mimics that of real-life clinical settings that demand simultaneous integration of multiple and varied sets of knowledge, skills, and behaviour. Our study concurs with that of Kjær *et al.* [16] that space and artefacts within that space (e.g. equipment) are fundamentally important when designing clinical placements for active student participation.

The autonomy students reported in running the clinic and reflections of being able to safely learn from their mistakes are powerful characteristics of this placement. Autonomy is one of the three psychological needs required for intrinsic motivation for students to learn, according to the self-determination theory [17]. The actions of having to prepare the room and equipment are actually contributing factors to students feeling autonomous, owning the space and accepting accountability. Gruppen *et al.* describe space as an important component in the material dimension of the learning environment as it can facilitate student professional identity development [18]. Autonomy-supportive teaching or supervising, as students have described here, means students have the opportunity to solve a task rather than feel controlled by a teacher.

This student-led clinic is now embedded within the curriculum of the undergraduate pharmacy programme. It has developed significantly since its conception, where the service is now offered across various sites to a wide range of populations, for example, to the public in a city centre location, in community centres to asylum seekers and refugees, homeless and hostel living people, and on university campus to staff and students.

This study adds to the evidence base to support student-led clinics as a valuable training and learning environment for undergraduate pharmacy students.

Conclusion

In this study, students have related experiences and perceptions that echo those captured in similar studies which have also been analysed and considered using pedagogical theories and perspectives. The strength of this study is that it completes a programme of evaluation of the student-led clinic. Our previous studies reported on the feasibility of setting up and delivering the clinic, and another details the impact of the clinic on the service users. In combination, this offers educators and placement developers richness of information and evidence about the development, implementation, and outcomes of a student-led clinic. This is particularly timely in the UK, where Schools of Pharmacy are dedicating much effort and resource in expanding work-based learning and exploring approaches to increase student participation. Student-led clinics offer a valuable opportunity when the sector is experiencing challenges in securing such placements in conventional settings, for example, community pharmacy, hospitals, general practice.

Supplementary material

Supplementary data are available at *International journal of Pharmacy Practice* online.

Author contributions

H.N. and C.R. conceived, supervised, and contributed to all elements of the study. P.A.-S. undertook all data collection, analysis, and interpretation. All authors were involved in the preparation of the final manuscript for submission.

Conflict of interest

None declared.

Funding

None declared.

Data availability

All anonymized data are available from the corresponding author upon reasonable request.

References

1. The General Pharmaceutical Council. *Education*. General Pharmaceutical Council. Retrieved from pharmacyregulation.org.
2. The Australian Pharmacy Council. *Home*. Australian Pharmacy Council.
3. The Accreditation Council for Pharmacy Education. *Setting the Standard in Pharmacy Education*. Accreditation Council for Pharmacy Education. Retrieved from acpe-accredit.org
4. General Pharmaceutical Council, UK. *Standards for the Education and Training of Pharmacist Independent Prescribers*. London: General Pharmaceutical Council, 2019.
5. Attenborough J, Abbott S, Brook J *et al*. Everywhere and nowhere: work-based learning in healthcare education. *Nurse Educ Pract* 2019;**36**:132–8. https://doi.org/10.1016/j.nepr.2019.03.004
6. Arja SB, Arja SB, Venkata RM *et al*. Integrated curriculum and the change process in undergraduate medical education. *Med Teach* 2018;**40**:437–42. https://doi.org/10.1080/0142159X.2018.1441988
7. Nazar H, Rathbone AP, Richardson C *et al*. Young@Heart clinic: a feasibility study of an undergraduate pharmacy student-led blood pressure and healthy lifestyle clinic. *Int J Pharm Pract* 2021;**29**:277–84. https://doi.org/10.1093/ijpp/riab008
8. Chin S, Richardson CL, Gardner A, Nazar H. The impact and user experience of a student-led clinic providing preventative services. *Int J Pharm Pract*. 2024;**32**:237–43.
9. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care:* 2007;**19**:349–57. https://doi.org/10.1093/intqhc/mzm042
10. Booth S. On phenomenography, learning and teaching. *Higher Educ Res Dev* 1997;**16**:135–58. https://doi.org/10.1080/0729436970160203
11. Kavannagh J, Kearns A, McGarry T. The benefits and challenges of student-led clinics within an Irish context. *The J Pract Teach Learn* 2014;**13**:58–72. https://doi.org/10.1921/jpts.v13i2-3.858
12. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;**3**:77–101. https://doi.org/10.1191/1478088706qp063oa
13. Huang K, Maleki M, Regehr G *et al*. Examining the educational value of student-run clinics for health care students. *Acad Med* 2021;**96**:1021–5. https://doi.org/10.1097/ACM.0000000000003922
14. Hopkins S, Bacon R, Flynn A. Student outcomes for interprofessional education in student led clinics: a rapid review. *J Interprof Care* 2022;**36**:234–44. https://doi.org/10.1080/13561820.2020.1858767
15. Young JQ, Van Merrienboer J, Durning S *et al*. Cognitive load theory: implications for medical education: AMEE Guide No. 86. *Med Teach* 2014;**36**:371–84. https://doi.org/10.3109/0142159X.2014.889290
16. Kjær LB, Strand P, Christensen MK. 'Making room for student autonomy'— an ethnographic study of student participation in clinical work. *Adv Health Sci Educ*. 2022;**27**:1067–94. https://doi.org/10.1007/s10459-022-10131-9
17. ten Cate OT, Kusurkar RA, Williams GC. How self-determination theory can assist our understanding of the teaching and learning processes in medical education. AMEE guide No. 59. *Med Teach* 2011;**33**:961–73. https://doi.org/10.3109/0142159x.2011.595435
18. Gruppen LD, Irby DM, Durning SJ *et al*. Conceptualizing learning environments in the health professions. *Acad Med* 2019;**94**:969–74. https://doi.org/10.1097/ACM.0000000000002702