

Quality improvement in community pharmacy: a qualitative investigation of the impact of a postgraduate quality improvement educational module on pharmacists understanding and practice

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Abstract

Objective Quality improvement (QI) is increasingly featuring in the United Kingdom (UK) National Health Service (NHS) agenda to promote safety, effectiveness and patient experience. However, the use of QI techniques by healthcare professionals appears limited and constrained with only isolated examples of good practice. This study explores QI within the pharmacy context. Focusing on the community pharmacy 'Healthy Living Pharmacy scheme', this study aims to explore changes in QI understanding resulting from a postgraduate QI educational intervention.

Methods Four focus groups were held involving 13 community pharmacists enrolled onto a newly developed postgraduate QI educational module. Two focus groups were held before and two after the module's completion. Knowledge of QI and practical applications following the learning was explored.

Key findings Three themes emerged: pharmacists' motivation for learning about QI, conceptual understanding and translation into practice. Pharmacists expressed positive views about learning new skills but expressed logistical concerns about how they would accommodate the extra learning. Prior knowledge of QI was found to be lacking and its application in practice ineffectual. Following completion of the QI module, significant improvements in comprehension and application were seen. Pharmacists considered it too soon to make an assessment on patient outcomes as their improvements required time to effectively embed changes in practice.

Conclusions Quality improvement forms an important part of the NHS quality and safety agenda; however, community pharmacists may not currently have adequate knowledge of QI principles. The postgraduate educational intervention showed promising results in pharmacist's knowledge, organisational culture and application in practice.

Introduction

Healthcare educators are seeking effective approaches to delivering care that is reliable, safe and within a quality improvement (QI) framework.^[1,2] This involves the application of evidence-based tools that can be applied to work practices to enhance the quality and delivery of care.^[3] Whilst the definition of quality varies, within the NHS and other healthcare systems 'quality' is about ensuring that health care is safe, patient-centred, timely, efficient

and equitable.^[4,5] Alongside educators, a range of stakeholders (e.g. healthcare professionals, managers, commissioners, policy makers, researchers) should take ownership implementing QI.^[6] There is an expectation that QI techniques should be an integral part of routine work in order for healthcare professionals to constantly improve their services; however, at present there appears to be only isolated examples of good practice.^[3] It has been

acknowledged that training should be offered in the science of safety and quality methods if QI is to be implemented in a sustainable fashion.^[7] Yet, currently there is a lack of coherent approaches to QI, both in training and organisational culture.^[7]

To reduce variability in QI delivery, healthcare professionals require an understanding of the application of evidence-based QI methods in practice.^[8] This has become more pronounced following the Mid-Staffordshire inquiry.^[9] This inquiry was commissioned in 2010 to investigate shortfalls in patient care in one UK hospital. The subsequent recommendations included that QI methods should be incorporated into the curricula to develop professional responsibility and safety.^[9] In response, formal QI methods training is being promoted.^[10] It has been shown that didactic learning is less likely to be effective compared to workplace driven QI training.^[11,12] A United States (US) survey study investigated the impact of a continuous QI programme in community pharmacies. The survey aimed to assess changes in attitudes towards patient safety culture and frequency of quality-related events. Despite its small sample, the programme was shown to increase self-reported patient safety culture attitudes among pharmacy staff.^[13] However, little is known about how QI is contextualised and fostered within the UK community pharmacy context or to what extent newly learnt principles can be applied to practice. This qualitative study aims to explore the view of community pharmacists who had enrolled onto a QI training module and investigates their understanding of QI principles and how their learning has impacted on practice.

Healthy Living Pharmacy scheme

We focus attention on one English community pharmacy initiative known as the Healthy Living Pharmacy (HLP) scheme. This is a nationally commissioned initiative that attempts to support the delivery of a range of services to improve public health by providing self-care advice, treatment for common ailments and healthy lifestyle interventions.^[14] Under the scheme, the pharmacy provides patients with health information, brief counselling and support on wide-ranging issues related to healthy living and well-being and is coordinated by a trained HLP champion.^[15] The HLP scheme is part of a wider 'Pharmacy Quality Scheme (PQS)' which incentivises pharmacies financially to achieve a set of defined quality criteria covering three quality dimensions of patient safety, clinical effectiveness and patient experience.^[16] These aims are in line with continued ambitions to prevent disease, tackle health inequalities, encourage cost-effective health care and to utilise pharmacy services better.^[17,18]

Despite positive reports of pharmacies adopting the HLP scheme^[14,19] and HLP 'champions' feeling empowered to engage with public health and well-being issues,^[20] significant barriers to effective implementation have been reported. This includes low patient and public awareness, lack of trained staff and poor organisational infrastructure to deliver the scheme effectively.^[21,22] It is unknown how these barriers are impacting on service quality. Given the majority of pharmacies in England have signed up to become an HLP and that the service is presently being delivered suboptimally, it was decided that this scheme would be ideal for demonstrating the impact of the application of QI methods in order to improve HLP practices.

Method

Aim

This qualitative study aimed to explore the views of community pharmacists who had enrolled on a postgraduate QI module. We investigated a priori and posteriori knowledge and understanding of QI and reflections on its application in practice.

Postgraduate Quality Improvement educational module

It was hypothesised that a postgraduate QI module that provided pharmacists with methodological training in the principles of QI could be used to address the suboptimal delivery of HLP services. The module was developed and delivered by TA and supported by SG and NG. It was to be studied over a 6-month period via virtual distance learning. To support the learning, three face-to-face study days were delivered. Pharmacists were eligible to enrol if they were a practising community pharmacist (working at least 15 hours per week) in the Derbyshire area. Pharmacists were encouraged to develop and adopt a culture of quality care using formal QI methods (i.e. root cause analysis tools). Further details of the module description objectives can be found in Table 1.

The module was funded by Health Education England (HEE) through the Pharmacy Integration Fund (PhIF) and so pharmacists received the training for free. This funding stream was set up by NHS England to support the postgraduate education of community pharmacists to improve patient outcomes.^[23]

Study design

The QI module was advertised to all community pharmacies within the UK Derbyshire area. All pharmacists who

Table 1 Details and learning outcomes of postgraduate QI module

Module description	Quality improvement
Delivered by	Leicester School of Pharmacy (De Montfort University)
Degree Level and Credit	Postgraduate Level 7
Delivery mode	Online distance learning, with tutor support and 3 interactive face-to-face events
Duration	Six (6) months
Indicative content/ Areas of study	<ul style="list-style-type: none"> • Clinical pharmacy management: health policy, healthcare organisation and management • Audit techniques • Clinical governance and how it relates to pharmaceutical services including training and auditing to drive service enhancement • Risk management, dispensing and medication errors, the causes, theory and investigation of medication errors • Service operation and delivery – service improvement, models of pharmacy practice, quality management theory and performance
Learning outcomes	<ul style="list-style-type: none"> • Critically review, using quality management methods, the provision of a chosen pharmaceutical service or provision • Appraise the strengths and weakness of the current service • Devise a proposal, based on critical review and appraisal, to enable the service to be enhanced. Assess clinical governance principles, risk management and local and/ or national policies and priorities relating to the service • Generate and implement SMART improvements to the chosen service • Plan the assessment or reaudit of the improved service • Critically analyse operational and personal development
Assessment	<ul style="list-style-type: none"> • 3000-word report • Portfolio of evidence

expressed an interest and enrolled on to the postgraduate QI module were invited to take part in the focus groups to explore ideas, contrary opinions and new areas of understanding.^[24] All were provided with an information sheet beforehand (via email) detailing the aims of the research. A topic guide was developed from the literature and focused on exploring QI knowledge and how QI methods are used in practice (Appendix S1). For convenience, focus groups were arranged to coincide with the first and last face-to-face study days. Two focus groups, lasting approximately 1 hour, were held at the first study day (at a local hotel) and explored prior knowledge of QI and the extent to which this was applied within their HLP. Following completion of the QI module (at month 6), two further focus groups were held at the final face-to-face study day (belonging to the same cohort) and

explored changes in QI understanding and the impact on practice (Appendix S2). To allow each pharmacist to explain in detail their understanding of QI and ways the learning had influenced practice, it was decided that focus groups should be small. With consent, all focus groups were audio-recorded and field notes taken during and after.

Reflexivity

To minimise bias and avoid influencing participant responses, focus groups were led by AL and two pharmacist educators (SG and JH) who were not involved in teaching or managing the QI module. AL is male and has a PhD in pharmacy practice research and extensive experience in qualitative methods. SG (male) and JH (female) are pharmacists with experience of pharmacy practice research.

Data analysis

All audio-recorded focus group discussions were transcribed verbatim. Given the workload reported by pharmacists, transcripts were not returned to participants for cross-checking. The data were imported into qualitative analysis package NVivo 9.^[25] Using an interpretivist methodology, which sought to position the meaning-making practices of human actors at the centre of explanations, a coding and a thematic analysis were then undertaken.^[26] This involved initial reading and rereading of the transcribed data (by AL) to identify common codes and categories. Codes were then compared for their internal consistency and boundaries. A coding framework emerged iteratively (with codes focusing on QI knowledge and its application in practice), and data systematically coded according to this framework. To enhance the consistency of analysis, all the coded data and analysis were reviewed by a separate member of the research team (NG). To enhance the credibility of the findings, all members of the research team discussed and checked coherence of the themes. The principle of constant comparison was used to test and refine the empirical conceptual consistency of codes and themes which were synthesised and narrated.

Findings

Participants

Thirteen community pharmacists enrolled on the QI module of which 11 attended the first study day and took part in the prefocus groups. The postfocus groups involved five participants (Table 2).

Table 2 Demographic details of pharmacists enrolled onto the module

Participant ID	Gender (M = Male, F = Female)	Participant age (years)	Pharmacy type	Participation in prefocus group	Participation in postfocus group
1	M	31	Small multiple	✓	
2	F	28	Large multiple	✓	✓
3	F	24	Large multiple	✓	✓
4	M	32	Large multiple	✓	✓
5	M	34	Small multiple	✓	
6	M	34	Large multiple	✓	✓
7	M	27	Small multiple		✓
8	M	45	Large multiple	✓	
9	F	25	Large multiple	✓	
10	M	47	Independent	✓	
11	M	32	Large multiple	✓	
12	M	33	Large multiple		
13	F	51	Large multiple	✓	

Pharmacist motivation

Participants reported a variety of reasons for enrolling on the module including opportunities for networking, learning from others, developing transferable skills and ensuring they were 'up-to-date' with NHS advances. Some simply wanted to take advantage of the funded training available, whilst others emphasised wanting to challenge themselves, enhance their employability and learn something new:

I think if we learn a little more about quality improvement then we'll hopefully have the tools at our fingertips to enable us to do it more effectively and efficiently. Because at the minute we don't really know where to start [FG1_Female_28yrs]

After completing the module, most reported having to use their own time, with some using holiday entitlement, to complete the learning. There were instances where participants did not feel fully supported by their managers due to worries over how the extra learning could negatively impact on existing duties. Despite these challenges, all participants enjoyed learning about QI and felt empowered through their knowledge of QI tools. There was also a sense of collegial working with fellow students. After completing the module, many felt encouraged to undertake further studies and saw this training as a means to enhance leadership skills and career prospects:

I enjoyed discovering the new tools ...that I had no idea about. I like the fact that I've gained skills for my CV ... I find it actually helps me grow as a professional and increases my networking abilities [FG3_Female_28yrs]

I agree with [name], in that I've become a better leader because I'm looking at deeper issues than I was before [FG3_Female_28yrs]

Understanding QI

Our second theme explores changes in participant understanding of QI and how this had developed after the training. Prior knowledge of QI was variable and limited with all participants reporting not having received any specific QI training. Some perceived QI to mean improvements to quality of patient care, better management of processes and identifying risks and reducing errors.

For me quality improvement is looking at current practice, what you are doing like what recipes you're following to make it better. You need to look at the improvement side of it as well. You're not stuck with the same recipes or procedures that you're following, you are looking at how it can be improved by looking at different programs [FG1_Male_32yrs].

Others were unclear on how to define the term. For example, they perceived QI to be 'guidelines to be followed' or patient feedback on their performance. There was confusion that QI referred to improving the range of services to patients:

Well I just thought it was the different schemes running, like the MUR [Medicines Use Review] and NMS [New Medicine Service] that were hopefully improving the quality of care that people receive. [FG1_Female_51yrs]

When participants were asked how they thought they applied QI, this was through audits. Workload pressures meant they did not have time to effectively engage with QI nor was there room for critical reflection with their teams:

The only chance you get to do that is 10 minutes before you open or 15 minutes after you close, but by that time half your staff have probably gone home. No one wants to stay. [FG1_Male_31yrs]

Quality improvement almost scares me because I just don't really know what I'm doing and what I'm supposed to be doing. . . [FG1_Female_51yrs]

After completing the module, participants' application and understanding of QI appeared to have significantly improved, being able to comprehensively define the scope of QI and its value to patients.

Now my understanding is that it's applying a series of tools to any given situation or service, and then analysing the current service to help you pose changes and solutions to make the service better using set tools that are outlined by NHS England . . . now I think more about patient outcomes. [FG3_Female_28yrs]

Specifically, they showed greater self-reflection on their practice, recognising the limitation of current systems of governance. For instance, the pharmacy's written standard operating procedures (SOP) were viewed in a new light and seen as an inadequate means to enhancing QI:

Traditionally we have the SOPs built up by somebody in the company. We don't really break down into details to see if there's any problem [FG4_Male_32yrs]

Translating QI learning to improve Health Living Pharmacy (HLP) activities

Our final theme considers the impact QI training had on practice. Before the training, participants were asked about how HLP activities were run in their pharmacies. They reported nominating a 'healthy living champion' who tended to single-handedly promote the HLP initiative. They had a notice board area where promotional materials for public health campaigns were displayed. There was common agreement that the HLP initiative was suboptimal due to poor patient awareness and expectations:

We have more 60 year old patients, they don't care about anything, they don't look at the board; all they want is their prescriptions [FG1_Male_32yrs]

After the learning, participants' accounts suggested that they were using QI to undertake a more proactive and investigatory approach to practice. They actively sought to involve their teams through mapping and redesigning processes which appeared to be changing their pharmacy's culture in making both their HLP and other services safer and more efficient:

I think this project has helped me to change the way I practise . . . Now I involve all the staff, even my counter assistants. Everyone involved gives their ideas and now it's made everything easier and the service can be improved quicker [FG4_Male_34yrs]

Participants suggested that it was too early to assess impact on patient experiences and outcomes since their proposed changes require time to imbed in practice.

Discussion

This study showed that in the sample of community pharmacists who participated, prior conceptual knowledge of QI was lacking and its application in practice ineffectual. On completion of the module, pharmacist's knowledge and comprehension of QI appeared to improve and they were able to demonstrate the application of QI principles to the healthy living service. The pedagogical approach of workplace learning alongside face-to-face group learning resulted in improvements in attitudes, culture and service delivery. Nevertheless, it was acknowledged that pharmacists felt it was too early to assess the impact on patient outcomes.

To our knowledge, this is the only UK study that has explored the assessment of a postgraduate QI intervention on community pharmacist's understanding of QI and investigated its impact on practice. The main limitation to this study is that only five participants out of the original 13 attended the follow-up focus groups. Six participants withdrew from the module due to personal reasons and workload pressures, and so, the findings should be viewed with caution as it is uncertain that data saturation was reached. In addition, our sample included pharmacists that had voluntarily enrolled onto the course and so may have been more motivated to engage with the learning. The views therefore expressed may not be representative of all pharmacists.

The finding add to the growing literature on QI. Despite QI forming an important part of the NHS quality and safety agenda,^[3,10] QI principles are poorly applied in routine practice.^[27] There is debate on how best to train health professionals in QI methods,^[12] especially in the light of pharmacists reported difficulties undertaking new learning due to lack of time or other organisational constraints.^[28,29,30] Despite the constraints, the learning was perceived to be beneficial and in line with findings from other studies. For example, in one Canadian study, a community pharmacist educational intervention (including the use of supportive QI tools) demonstrated that improvements in pharmacy operational processes could result in reduced incidences of medication errors/near misses.^[31] In an Australian study, a community pharmacy QI intervention had potential to improve the safety of dose administration aids to nursing homes and reduced the occurrence of dispensing errors.^[32] Our findings also suggested improvements, but any assessment of patient-related outcomes will be incremental and gradual. This is similar to the work of others, for instance a community pharmacy QI intervention study in the United States found that after a follow-up period of 2 months, the

study was unable to detect the impact either on quality-related events or patient safety attitudes.^[13]

Quality improvement should be a continuous process involving a range of stakeholders^[7] but our study suggested not all pharmacists felt supported by their management teams, particularly when they were wanting to trial new ideas, suggesting that organisational value of the process and advantages of using QI may be lacking. This is somewhat unsurprising given that new ways of working do not easily translate into practice.^[33] Employers would be well-minded to prioritise and encourage QI methods to allow pharmacy teams to critically reflect and improve services and work practices. The General Pharmaceutical Council should seek to review training and competency requirements to promote greater emphasis on demonstrating competence in QI methodology. In the light of the COVID-19 pandemic, which has seen significant changes to the way health professionals work,^[34] policy makers should review how QI is being framed, prioritised and implemented within practice and advanced pharmacy education and training.^[35] It would be prudent to appraise and embed QI within any new role or service and ensure additional resource is available for QI training and development.

Conclusion

With NHS services facing financial pressures and significant practice changes, the QI agenda is increasingly seen as an important mechanism to improve safety, effectiveness and patient experience. This study highlights that UK community pharmacists may have limited skills or capacity to fully embrace QI and its application in a manner that is recommended. Postgraduate training and support could be one way to address pharmacist deficit in knowledge in this area. The QI module could be made available more widely to improve pharmacists QI skills and to encourage best practices and improvements in patient care.

Declarations

Conflict of interest

AL declares no competing interests. TA, NG and SG were responsible for the delivery of the QI module. JB is Chief Officer of Derbyshire Local Pharmaceutical Committee (LPC).

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Authors' contributions

AL is the Chief Investigator and made substantial contributions to the overall conception, development and design of the study. NG, SG and TA provided guidance on the methodology and on the qualitative analyses. TA, NG and SG were responsible for running the QI module. All authors contributed to the data analysis and contributed to manuscript drafting and write-up. All named authors contributed to editing and approved the final manuscript.

Ethics approval and consent to participate

The study was given a favourable opinion on 4 February 2019 by the Faculty of Medicine and Health Sciences Research Ethics Committee, University of Nottingham (Ref: 188-1901).

Consent for publication

Written informed consent was obtained from all individual participants included in the study.

Data availability statement

The data sets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Pre-QI module topic guide.

Appendix S2. Post-QI module topic guide.