Universidade de Lisboa

Faculdade de Farmácia

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Mestrado Integrado em Ciências Farmacêuticas

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Resumo

A maioria das revisões sistemáticas sobre a efetividade do uso de métodos de simulação na educação de médicos, enfermeiros, dentistas e veterinários sugerem que os mesmos são benéficos na aceleração do processo de aprendizagem e no desenvolvimento das capacidades dos alunos. Há, no entanto, poucos exemplos de simulação aplicada ao ensino da farmácia e apesar do uso da simulação noutras áreas do ensino da saúde ter aumentado significativamente nos últimos anos, o uso de simulação no ensino farmacêutico, por comparação, não tem evoluído com a mesma intensidade. Contudo, os métodos de simulação sugerem melhorar as competências e o desempenho na aprendizagem. Este estudo procurou explorar, compreender e descrever a perceção dos estudantes relativamente ao "Pharmacy Leadership and Management (PLM)", uma unidade curricular baseada em métodos de simulação, bem como impacto deste no ensino dos futuros profissionais de saúde. O PLM é uma unidade curricular do quarto ano do Mestrado em Farmácia, lecionado na Universidade de Nottingham e que integra o conhecimento adquirido pelos estudantes durante o seu percurso académico num contexto simulado, equivalente ao que encontrarão na vida real. A unidade curricular baseia-se em dois conceitos fundamentais: a simulação e a competição, o PLM proporciona ao estudante uma experiência de simulação que se espera relevante para o seu desenvolvimento profissional. O estudo misto foi desenvolvido um ano após a implementação do PLM com os estudantes que o experienciaram pela primeira vez. Consistiu numa primeira fase num inquérito global, seguido de entrevistas e um "focus group". A análise quantitativa e qualitativa permitiu descrever fenomenologicamente as perceções dos estudantes e de forma abrangente o impacto no seu processo de aprendizagem. Através deste estudo foi demonstrado que os estudantes se sentiam mais preparados para serem futuros profissionais de saúde, depois de concluírem o PLM e atribuíam esse sentimento à oportunidade de consolidar o conhecimento adquirido em experiências anteriores. A experiência de simulação proporcionada pelo PLM, desenvolveu as suas capacidades de comunicação, liderança e delegação. O trabalho em grupo foi destacado como fundamental para corresponder às tarefas exigidas e desenvolver estas mesmas capacidades. A experiência positiva relatada pelos estudantes relativamente ao PLM, e em particular, à sua componente de simulação, reforça a importância de utilizar a simulação de utentes na prática da farmácia e motiva as instituições de ensino a considerarem esta metodologia, apesar das barreiras de implementação identificadas.

Abstract

Several systematic reviews on the effective use of simulation methods on medical, nursing, dentist and veterinarians' education suggest that simulation methods are useful in helping students to acquire skills and to accelerate learning. There are few examples of simulation applied to pharmacy education and despite the use of simulation in health professions education has increased dramatically in the last years, the use of simulation in pharmacy education has not advanced the same degree as in other health education fields. However, simulation methods seem to improve competencies and performance, as well as learner satisfaction. This study aimed to explore, understand and describe student perceptions of Pharmacy Leadership and Management (PLM) as a simulation-based module and the impact on learning as future healthcare practitioners. PLM is a fourth year Master of Pharmacy module taught at University of Nottingham which aims to integrate all previous knowledge acquired by students into a simulated, real-life setting. Based on two central concepts: simulation and gamification, PLM provides to the student a monitored simulated experience expected to be relevant for further professional development. The mixed-method study was conducted after one year of PLM implementation with students who first experienced PLM. A global satisfaction survey was performed followed by interviews and a focus group. Quantitative and qualitative research allowed to phenomenologically describe students' perceptions and the wider impact on learning. Through this research it was demonstrated that students after completing PLM felt more prepared to be future health professionals, assigning that feeling to the opportunity of consolidating knowledge from previous modules in a safe environment for practice. PLM simulation experience, as described by students, has developed their communication, leadership and delegation skills. Working on groups was referred to be fundamental to deliver tasks throughout the module successfully and to develop the skills mentioned previously. The positive experience described by students regarding PLM, and particularly with the simulation approach reinforces the importance of using patient simulation in pharmacy practice activities and encourages teaching institutions to consider this methodology, despite the barriers identified for implementation.

Keywords: simulation, learning, pharmacy, communication and leadership;

Palavras-chave: simulação, aprendizagem, farmácia, comunicação e liderança;

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1. Introduction

The 66th World Health Assembly (WHA) in 2013 approved a resolution recognizing the importance of transforming health workforce education. This resolution requested World Health Organization (WHO) to globally assess the current health workforce education and share the best practices, developing a report which included strategies to transform it.(1)

In support of this resolution, after the 66th WHA, during the third Global Forum on Human Resources for Health, taking place in Recife, Brazil, WHO launched its guidelines which expected to give rise to regional and country policy and technical dialogues on how to prepare health professionals for the 21st century. These guidelines defined transformative scaling up of health professionals' education and training as the sustainable expansion and reform of health professionals' education and training to increase the quantity, quality, and relevance of health professionals. This was expected to strengthen the country health systems and improve population health outcomes. Among the recommendations regarding education and training institutions, the use of simulation methods was strongly recommended even though the moderate level of evidence. Several systematic reviews on the effective use of simulation methods on medical, nursing, dentist and veterinarians' education suggest that simulation methods are useful in helping students to acquire skills and to accelerate learning. Simulation methods seem to improve competencies and performance, as well as learner satisfaction. (2)

1.1. Simulation in healthcare education

In fields such as aviation, law enforcement, military and the judiciary system, simulation-based education is a current practice that complements traditional education methods. In healthcare education, simulation methods are progressively becoming popular. This approach has gained growing acceptance as an educational method, especially to improve innovative learning environments in healthcare education. As consequence of this rising global awareness, government, academic, healthcare institutions and accreditation bodies are accepting simulation as a method of learning. However, a lack of sustainable financial support or business model, a lack of dedicated simulation specialists/technicians, and a lack of collaborative activities with leading

centers internationally are the main barriers described to the implementation of simulation in health education. In order to fully integrate simulation into educational curricula, the simulation must be formally included in the budget of healthcare institutions. (3)

1.2. Simulation in Pharmacy Education

Following the global trend of reforming health professions education, the International Pharmaceutical Federation (FIP), in 2016, organized a Global Conference on Pharmacy and Pharmaceutical Sciences Education, taking place in Nanjing, China. At this conference, was presented a global vision for the pharmacy and pharmaceutical sciences workforce, its development goals and the Nanjing Statements. The statements were developed by FIP to guide the process of pharmacy and pharmaceutical education reform and enhance the professional standards worldwide. Among the statements adopted by consensus, many were related to experimental education, where students incrementally develop their pharmacy practice and science skills in a wide variety of real-life settings. It was recommended for institutions to provide supervised laboratory and clinical experiences throughout the curriculum, including demonstrations and simulations. (4)

There are few examples of simulation applied to pharmacy education and despite the use of simulation in health professions education has increased dramatically in the last years, the use of simulation in pharmacy education has not advanced the same degree as in other health education fields. (5)

Regulatory or accreditation are encouraging the use of patient simulation in clinical pharmacy practice activities. Despite the range of simulation techniques that might be applied to modules development, most are based on high-fidelity human patient simulators. Simulation, currently, has been used to develop participants' skills mostly on technical tasks. However, increasingly, it is used as a setting in which to assess and develop teamwork and communication skills. While patient simulation scenarios can be time-consuming to develop, program, and execute, they provide a standardized experience for all students in a safe environment. Innovation and research continue to be needed in this area to define the benefits and lessons learned. There are many opportunities to continue to enhance pharmacy education with the expansion of simulation experiences. There is a wealth of opportunity to augment learning and provide practice skill development for pharmacists by using simulation in a meaningful way. (6)

Understanding how simulation is used in pharmacy education process and students' perception of it, is essential to assess the effectiveness of this learning approach.

1.2.1. Pharmacy Leadership and Management

Since October 2015, the School of Pharmacy at the University of Nottingham, making some changes on their Master of Pharmacy (MPharm) curriculum, implemented during the fourth year a module named Pharmacy Leadership and Management (PLM). This module aims to integrate all previous knowledge acquired by students into a simulated, real-life setting. Based on two central concepts: simulation and gamification, PLM provides to the student a monitored simulated experience expected to be relevant for further professional development.

1.2.1.1. Module Aims

PLM brings together learning from across the whole MPharm course to run a business that provides patient care, essential, advanced and bespoke services. It also aims to develop further leadership, management, marketing, communication skills, problem-solving abilities and working in teams. Also, the module allows students to capitalise on experiences gained outside the module such as vocational experiences both within the course and outside.

1.2.1.2. Module content

Through the year, students are grouped in teams with the purpose of designing a management plan and running a simulated pharmacy business. Performance is daily monitored, and teams are ranked according to evaluation criteria. Students are confronted with routine activities, long-lasting projects, and incidents. Actors visit as patients and customers, prescribers, pharmaceutical company representatives, inspectors and so on. Students receive phone calls from doctors, nursing homes, patients and have to do real out of hours practice. Additional challenges are prepared, as preparing a presentation for a clinical commissioning group about a new pharmacy service, respond to an ethical dilemma, design health promotion campaigns in response to "local" needs or deliver new services. With PLM is expected that students develop a team culture, leadership, management and appraisal skills to support their future professional roles. Mentorship is

guaranteed to each team by a trained postgraduate leadership and management mentor who meets with the group to facilitate discussions and situation resolution as required.

1.2.1.3. Module structure

During the module, each team is physically in their pharmacy for forty-three hours, divided by two semesters (Table 1.1 – PLM Schedule). This represents the total time dedicated to simulation and is specifically designed to receive patients, work on tasks and perform scenarios. PLM also has introductory lectures on leadership, management, ethics and business skills in each semester. Students may "buy in" bespoke training during the simulation time to learn new skills or enhance existing skills. Businesses may also be required to attend contractual meetings.

Attendance to all scheduled teaching activities is compulsory, and absence without approved certification results in a mark of zero for the module.

Table 1.1 – PLM Schedule

Activity	**Number of sessions**	**Duration of session (hours)**	**Total time (hours)**
Introductory lectures	4	2	8
Practical (scenarios)	2	12,5	43
	2	9	
Seminars	2	2	4
Group reviews	3	1	3
Directed study	variable	variable	22,5
Revision	variable	variable	20

1.2.1.4. Module learning outcomes

As a final year module, PLM learning outcomes are designed to correspond standard ten, defined by General Pharmaceutical Council (GPhC) for initial education and education for pharmacists. The level achieved on each outcome is endorsed by GPhC for a four-year course, followed by a pre-registration year. Meeting those standards is mandatory to receive accreditation from GPhC. (7)

1.2.1.5. Module learning outcomes assessment

Students performance is assessed with three different evaluation tools, each one contributing differently to a final mark (Table 1.2 – PLM Assessment). Students' performance during simulation is video recorded and monitored by module staff in real time. Simulation mark is included in the reflective portfolio.

Table 1.2 – PLM Assessment

Assessment type	Duration (minutes)	Schedule	Contribution to module mark
One Objective Structured Clinical examination (OSCE)	60	End of each semester	60%
Reflective Portfolio	-	End of each simulation block	20%
Online examination	60	End of the year	20%

2. Objective

The propose of this study was to explore, understand and describe student perceptions of Pharmacy Leadership and Management (PLM) as a simulation-based module and the impact on learning as future healthcare practitioners.

3. Methods

A sequential mixed-methods design was used to capture students' perceptions of PLM as a simulation-based module. Module convenors developed an anonymous and voluntary global survey and performed by students after finishing the module (phase I). On the basis of previous quantitative analysis and for further understanding on PLM impact on learning and the broader impact on their future role as health care practitioners, students interested in additional contribution were interviewed (phase II). Finally, integration of quantitative and qualitative data from survey and interviews allowed interpretation.

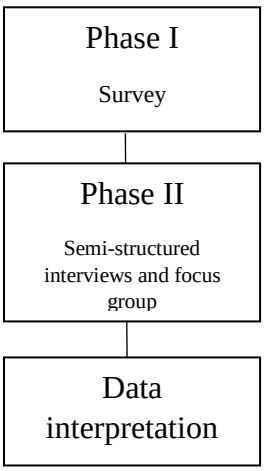

Figure 3.1 - Study design

3.1. Cohort

All Master of Pharmacy fourth-year students at The University of Nottingham enrolled in PLM between September 2015, and May 2016 were invited to participate (n=221). This cohort represented the first year of students contacting with PLM after implementation. Phase I participants who allowed further contact and collaboration were invited to participate in phase II interviews.

3.2. Ethics

Two different ethical approval requests were submitted, one for each phase. Both requests were approved by the School of Pharmacy Ethics Committee, University of Nottingham. Consent in phase one was taken before survey submission with question one completed. Phase two consent was taken before interview an after each participant signed a consent form approved by the ethics committee (Annex A1).

3.3. Phase I - Survey

An electronic (online) survey design was used to capture anonymous and voluntary responses from students enrolled on PLM module 2015-2016. This survey was sent to potential students (N = 221) by university email at the end of the module and after final evaluation. A period of one month was given for survey filling after that period survey was closed and no more answers were accepted. A total of eighty-three question survey

was developed by module convenors, based on pedagogical questions and essential data for PLM improvement. Participation consent and demographic context were required before beginning the survey. Students were requested to answer a total of forty-five (45) ended questions, including yes or no and five-point Likert scale (strongly disagree, disagree, neither agree or disagree, agree and strongly agree) questions and thirty-eight (38) short-answer questions. Survey content focused on overall satisfaction, level of difficulty, simulation experience, leadership, and mentorship, developed skills and PLM improvement. SurveyMonkey® online platform was used to deliver the survey and store data. Survey outcomes were analysed, and emergent themes for further investigation were raised.

3.4. Phase II – Interview and Focus Group

Survey outcomes analysis allowed to identify matters of interest for further investigation. The interviewing approach was decided after outcomes analysis and a semi-structured interview method was performed. This methodology allowed to cover all specific topics of interest, adapting the interview to interviewee framework and understanding of events.(8) A semi-structured interview guide (Annex A2) was designed based on those emerging concepts. Nine months after PLM conclusion, an email invitation to be interviewed was sent to students who previously consented to be contacted for further investigation. Three interview options were given: face-to-face interview, phone interview, and online interview. Considering a group of students doing the pre-registration period at the same place, a focus group was scheduled. To assess the validly of interview guide developed, a first pilot interview was performed, and few changes were made to the questions and topics covered. All interviews and focus group were performed by the same interviewer, and a recording device was used to record the interview. Prior formal written consent was required for all participants.

3.5. Data analysis and theory

Survey data were analysed using Microsoft Office Excel® software, and all ended questions answers were converted to percentages to simply analysis. Short text answers were treated using QDA Miner Lite® software; the same software used to analyse data from interviews and focus group after records transcription. Text codification allowed the thematic analysis of interviews and focus group.

Considering the aim of this study and the specific module in research, qualitative phase required a theory supporting the approach. A phenomenological theory research was conducted, which allowed to illustrate the specific topics involved in PLM experience, to identify the phenomena through how they are perceived by the actors in this situation.

4. Results

4.1. Phase I – Survey

4.1.1. Participants

Email invitations to fill the survey were sent to a total of 221 individuals registered in PLM module 2015-2016. A total of 143 students, which represents a 64,25% response rate, agreed in filling the questionnaire to provide specific feedback about the content of various module elements and therefore for module related research. All questions were optional, and all respondents completed the survey providing demographic data. The percentage of female respondents (72,03%) was higher than male (27,97%).

Table 4.1 – Participants

	Cases (n)	Percentage (%)
Gender		
Male	40	27,97
Female	103	72,03
Nationality		
UK/EU student	62	43,36
International student	81	56.64
Community Pharmacy Experience		
None, just placements on the course	41	28,67
One week or less	12	8,39
More than a week, but no more than a month	26	26,00
More than a month, but less than six months	43	30,07
More than six months	21	14,69

4.1.2. Overall satisfaction

Students were questioned about their overall satisfaction. The majority gave an affirmative answer, agreeing (68,53%) or strongly agreeing (14,69%) with the statement "I enjoyed PLM module." Seventeen students (11,89%) gave a neutral answer, and a total of seven students (4,90%) had a negative experience (Table 4.2 – Overall satisfaction).

Table 4.2 – Overall satisfaction

	Cases (n)	Percentage (%)
I enjoyed the PLM module		
Strongly agree	21	14,69
Agree	98	68,53
Neither agree or disagree	17	11,89
Disagree	6	4,20
Strongly disagree	1	0,70

A total of seventy-two students (50,00%) gave a brief description of their experience about PLM to students in lower years. As expected students' opinion was mostly positive, some students highlighted PLM as a simulation-based module which gave them the opportunity to consolidate and apply knowledge from other modules while training practice.

"Good experience to tie everything from other modules together and understand how it can be used in real-life practice." [respondent 8]

"The module can expose you to the real pharmacy practice before graduating. Appreciate this precious opportunity and learn pro-actively." [respondent 32]

"Will make you a better pharmacist-to be." [respondent 27]

"It was not realistic. Focused too much on difficult situations that could happen in pharmacy. However, it does prepare one for the worst." [respondent 67]

4.1.3. Difficulty

When enquired about the PLM high level of difficulty, most respondents gave a neutral answer. Eighteen (17,10%) students considered PLM a complicated module in contrast with sixty-three (43,56%) which disagree or strongly disagree (Table 4.3 - Difficulty).

Table 4.3 – Difficulty

	Cases (n)	Percentage (%)
The PLM module was too difficult		
Strongly agree	3	2,10
Agree	15	15,00
Neither agree or disagree	62	62,00
Disagree	58	40,56
Strongly disagree	5	3,50
The PLM module challenged me		
Strongly agree	34	23,78
Agree	98	68,53
Neither agree or disagree	9	6,29
Disagree	2	1,40
Strongly disagree	0	0,00

Students also reported that difficulty decreases with time and teamwork helped to overcome difficulties during scenario performances.

"In the beginning, it is difficult for everyone, but the team gradually gains in confidence which makes the scenarios easier to deal with." [respondent 13]

Participants agreed about PLM as a challenging module. 92,31% of respondents considered that PLM challenged themselves (Table 4.3 - Difficulty). When sharing their experience, students reported simulation scenarios as a critical factor in the challenge.

"Fun and challenging. Able to learn a great deal from the simulated scenarios." [respondent 27]

"It was a good and challenging experience" [respondent 61]

4.1.4. Confidence

In general, students considered PLM module as an experience which developed their confidence and preparation for practice. The conclusion of PLM made 88,81% of the respondent students more confident when facing patients. Students also considered that PLM module developed their confidence to manage a pharmacy (64,62%). Overall students felt more prepared for practice after finishing PLM (87,79%).

Table 4.4 - Confidence

	Cases (n)	Percentage (%)
I feel more prepared for practice now that I have completed PLM		
Strongly agree	29	22,14
Agree	86	65,65
Neither agree or disagree	12	9,16
Disagree	4	3,05
Strongly disagree	0	0,00
I feel more confident talking to patients having done PLM		
Strongly agree	48	33,57
Agree	79	55,24
Neither agree or disagree	14	9,79
Disagree	2	1,40
Strongly disagree	0	0,00
PLM has made me more confident to manage a pharmacy in the future		
Strongly agree	18	13,85
Agree	66	50,77
Neither agree or disagree	34	26,15
Disagree	12	9,23
Strongly disagree	0	0,00

When asked to detail how PLM helped to prepare for practice, students emphasised the opportunity of training communication with patients and the unexpected nature of scenarios.

"A wide range of scenarios" [respondent 31]

"more experience" [respondent 29]

"gave me more experience conducting various consultations and built my confidence in communicating effectively with patients" [respondent 25]

4.1.5. Simulation

Different types of scenarios, face-to-face, telephone, email, had a different impact on developing communication skills. Face-to-face scenarios were considered the most effective to improved communication skills.

Table 4.5 – Simulation

	Cases (n)	Percentage (%)
The scenarios in PLM felt realistic		
Strongly agree	18	12.59
Agree	72	50.35
Neither agree or disagree	34	23.78
Disagree	16	11.19
Strongly disagree	3	2.10
The face-to-face scenarios improved my communication skills		
Strongly agree	44	31.43
Agree	88	62.86
Neither agree or disagree	5	3.57
Disagree	3	2.14
Strongly disagree	0	0.00
The telephone scenarios improved my communication skills		
Strongly agree	17	12.78
Agree	88	66.17
Neither agree or disagree	22	16.54
Disagree	6	4.51
Strongly disagree	0	0.00
The email scenarios improved my communication skills		
Strongly agree	6	4.55
Agree	37	28.03
Neither agree or disagree	52	39.39
Disagree	34	25.76
Strongly disagree	3	2.27

Open questions about the different types of scenarios revealed different perceptions about it. When questioned about what students value in face-to-face scenarios they answered:

"developed my ability to respond to problems on the spot" [respondent 3]

"able to interact with patients" [respondent 18]

"mimic the real situation in pharmacy practice" [respondent 52]

When questioned about what students value in telephone scenarios they answered:

"practicing different style of communication" [respondent 12]

"had to think quickly" [respondent 54]

"train listening skills" [respondent 66]

When questioned about what students value in email scenarios they answered:

"we can refer the patient to other sources" [respondent 3]

"give you time to prepare an answer" [respondent 35]

"could give detailed information to patient in writing" [respondent 64]

4.1.6. Teamwork

During PLM students were divided into teams and competitions. Team members were the same during all module and individuals were strongly recommended to coach and promote teamwork spirit. Most students (85.61%) had a positive experience with their team, and just 36.90% answered that was unlikely to maintain contact with team members after living the university.

Table 4.6 – Teamwork

	Cases (n)	Percentage (%)
We got on well as a team		
Strongly agree	42	31.82
Agree	71	53.79
Neither agree or disagree	15	11.36
Disagree	4	3.03
Strongly disagree	0	0.00
How likely is it that you will stay in contact with your team after you leave university?		
Very likely	18	14.52
Somewhat likely	60	48.39
Somewhat unlikely	34	27.42
Very unlikely	12	9.68

4.1.7. Mentorship

Students revealed a negative opinion about mentorship during the module. 49,61% respondents considered that mentor did not make the difference over the course of the module and had no impact on the team. 32.06% revealed a neutral opinion about mentorship.

Table 4.7 - Mentorship

	Cases (n)	Percentage (%)
Having a mentor made a difference to our team over the course of the module		
Strongly agree	2	1.53
Agree	22	16.79
Neither agree or disagree	42	32.06
Disagree	34	25.95
Strongly disagree	31	23.66

When asked to detail more about the interaction between mentor and the team, students described mentor as a motivator agent.

"break the ice" [respondent 5]

"motivating us and keep us on track to progress." [respondent 19]

"moral support" [respondent 27]

4.1.8. Learning experience

Students agreed that PLM is a module that complements learning from other modules at the fourth year and consolidates learning from all MPharm degree.

Table 4.8 – Learning experience

	Cases (n)	Percentage (%)
The PLM module consolidates learning from other modules in the MPharm		
Strongly agree	38	29.01
Agree	79	60.31
Neither agree or disagree	13	9.92
Disagree	1	0.76
Strongly disagree	0	0.00
The PLM module complements learning from the other year 4 modules		
Strongly agree	28	21.37
Agree	81	61.83
Neither agree or disagree	15	11.45
Disagree	7	5.34
Strongly disagree	0	0.00

4.1.9. Employability

Most students (64.62%) felt more employable after completed PLM. However, 31,54% gave a neutral answer and considered that PLM had not a significant impact on their employability.

Table 4.9 – Employability

	Cases (n)	Percentage (%)
Having completed PLM, I feel I will be more employable in the future		
Strongly agree	15	11.54
Agree	69	53.08
Neither agree or disagree	41	31.54
Disagree	4	3.08
Strongly disagree	1	0.77

When asked to detail how PLM made them feel more employable, students mentioned the confidence developed during the module and readiness to practice as primary factors.

"confidence and understanding of how pharmacy works" [respondent 14]

"I feel more competent in dealing with community situations." [respondent 25]

"more experienced in counseling and incorporating clinical knowledge in practice." [respondent 47]

4.1.10. Leadership

Regarding leadership inquired students revealed that PLM had the appropriated setting to evidence their leadership ability. 53,08% also considered that developed themselves as leaders during the module.

Table 4.10 - Leadership

	Cases (n)	Percentage (%)
I had opportunity to demonstrate my leadership ability in PLM		
Strongly agree	16	12.31
Agree	70	53.85
Neither agree or disagree	37	28.46
Disagree	7	5.38
Strongly disagree	0	0.00

I developed as a leader during PLM		
Strongly agree	16	12.31
Agree	53	40.77
Neither agree or disagree	52	40.00
Disagree	9	6.92
Strongly disagree	0	0.00

When asked to detail how PLM changed their leadership and management ability students mentioned that communication and teamwork improved their leadership skills. Running their own business was also highlighted as a reason for improving their management ability.

"I'm more able to communicate better as a leader" [respondent 10]

"had gained so many skills as a leader particularly when I was the responsible pharmacist during simulation. I had to manage my whole team and that sense of responsibility required rapid maturity as an effective leader." [respondent 43]

4.2. Phase II – Interviews and Focus Group

4.2.1. Participants

Twenty-eight out of 143 students (19,58%), after completing the survey manifested the willing of being interviewed about their experiences during the module and the impact on them and their practice after they left university. A positive response to email invitation was received in eleven cases. Five students have done hospital pre-registration and six in community pharmacy. Seven interviews and one focus group were scheduled. Three face-to-face interviews and one focus group were performed at the School of Pharmacy, University of Nottingham. One interview was performed via a web platform and three interviews were performed using the phone. Four students, doing pre-registration period at the same place, participated in the focus group.

4.2.2. Interviews and focus group responses

4.2.2.1. Perceived experience of simulation during the module

Responding students indicated simulation as the most challenging component of PLM. The responses related it to the unexpected nature of scenarios and the different types of tasks required.

"Actually, situations where people came in and asked you questions during the roleplaying of patients that were challenging" [interviewee 1]

"Dealing with e-mails, dealing with phone calls and queries about medicine information kind of things" [interviewee 1]

"Each block contains different scenarios that we acted through with either under the phone, e-mail or an actual actor walking in pretending a patient [interviewee 2]

"Anything can happen, anyone can walk into "your pharmacy" [interviewee 4]

"What I found challenging about the simulation was the hard work to give acceptable solutions to the query, presented in a face to face situation, phone or email." [focus group participant 3]

Some students referred to simulation as an experience logistically hard to implement but useful to develop practice before the pre-registration period.

"The only negatives I could probably think about is maybe more actors coming in, because there was a lot of time spent on just the emails or phones and doing the prescriptions which is more a logistical task." [interviewee 2]

"It is a very positive experience, but I recognize, it is a massive operation." [interviewee 3]

"The idea is good, but it's hard to carry it out, I mean, I think did they did a really good job putting it equally, because only one person in the group does each scenario, you cannot all have all." [interviewee 5]

Participants mentioned ethical dilemmas during simulation as an essential situation to face, to assess when they were prepared to deal with it. They also mentioned actors' behavior, especially conflict situations significant to develop their practice.

"I have a lot of good memories about PLM especially in certain cases such as managing conflicts, where I think a parent comes in and has some medicines that her daughter is taking and wants to know what they are for." [interviewee 2]

"Sometimes a better use of people's time challenging them with ethical scenarios. [interviewee 4]

"Confidentiality issues, because of ethical dilemmas that happen all the time in real life and can't really learn about them out of the book." [interviewee 5]

Even though some scenarios seem unrealistic and actors were pretending to be patients or health professionals, students considered simulation useful to develop their practice before beginning the pre-registration period and for future practice. Participants also mentioned simulation more useful to understand examples given during lectures.

"You didn't have a physically item there to stimulate you to look at the box and think about what to say and that side of things was different." [interviewee 1]

"Even though I knew the patients weren't sick in PLM, I thought it prepared me for talking to patients, real patients" [interviewee 4]

"*It's easier with real patients"* [interviewee 3]

"I think at times I felt it was a bit unrealistic because of all the different roles that you would do, when you're in real life you might not experience to do all of the things" [interviewee 2]

"Because having a lecture about some example that may happen, doesn't really work. You need to go through it and simulation allows that." [interviewee 3]

4.2.2.2. Skills developed during the course

Some students mentioned an improvement in research methods due to PLM. Simulation required to find answers to patient queries quickly.

"Find information on the computer, and you need to find it quickly, and I developed that skills" [interviewee 1]

The team-based approach during the course was considered suitable to develop the relationship between students. This approach also provided an opportunity to progress leadership skills and made some changes in students' feedback abilities, adapting communication within the team. Sharing knowledge to overcame challenges during PLM was also valued by students.

"It developed my team management skills and feedback skills" [interviewee 1]

"People got the chance of experience different types of leadership" [interviewee 2]

"As a group, in fact in terms of leadership it did help, because we all had to recognise that other idea might go against your but probably works better than yours. So, it helped us to be a leader hearing that and working it through. Accepting ideas coming from others." [focus group participant 4]

"That team work, so developing leadership as well within the PLM scenario" [focus group participant 2]

"What I found good about it was the simulations and the hard work as a team. So, if you just try to do it by yourself, things go wrong. [focus group participant 4]

Different situations throughout the module provided the change to improve communication skills with patients, but also with health professionals. Students had the

chance to train how to adapt their language considering the person who was talking with and humanizing communication when dealing with patients. Responses also suggested that students were more prepared to manage conflicts after the module.

"We tend to struggle talking with the patient and dropping the scientific language." [interviewee 1]

"However, I can see that helped the other members of my team with just get some more confidence around, treating a person as a person, rather than they are presenting symptoms, you are going to give them answers to that symptoms and not pick up on like the facial cues or body language changes." [interviewee 2]

"It helped in my communication skills and body language, eye contact, that sort of things" [interviewee 3]

"I think it made talking with health professionals easier." [interviewee 4]

"Managing conflicts is something that it comes up in a hospital, a lot with unsatisfied patients, because not everyone is happy. But also with health care professionals however, that is easier to solve because they have hopefully similar experiences like PLM to learn how to manage conflicts with colleagues." [interviewee 2]

Some students had the opinion that PLM not just improved their ability to work within a team, but also developed their delegation skills. Considering the workload during the module, prioritising and delegating task was imperative to complete them with success.

"We have never run out of time because we delegate tasks." [interviewee 7]

"I would say that time management is more about prioritisation tasks, so during PLM we would be given someone who walks in the pharmacy, the phone would ring and then the e-mail would arrive all at the same time. And I think that was what allowed me to progress my time management skills, scenarios like that, because that stuff happens in a hospital as well." [interviewee 5]

"In our PLM's pharmacy I highlight the delegation, early we figured out that we couldn't have one person doing all the job, so we allocate people to answer the phone, people to do the script, people to do patients who came in." [focus group participant 1]

4.2.2.3. Preparation to practice and confidence empowerment

Students revealed that this module helped them to consolidate what they have learned from other modules during the course and invigorate knowledge they previously acquired, understanding the right situation to apply it.

"helped actually to reinforce some things" [interviewee 2]

"to refresh my memory on things that happened early on my degree" [interviewee 4]

"putting everything I've learned in Uni at practice is really good." [interviewee 7]

After the module, students felt more confident contacting with other health professionals, understanding when an answer to a relevant question was needed. Students

also mentioned. Some students also assumed that skills developed during PLM helped them to be more confident in real practice.

"I think it gave you the confidence that you had a valid question, or you had a valid concern." [interviewee 1]

"Yes, because the communication skills I've learned, have made me more confident." [interviewee 7]

As a final year module, students gave an optimistic insight about PLM, mentioning the module as a great tool which allowed them to change some perceptions about real practice and face the next year with more confidence. They also mentioned that PLM made them more professional.

"So, I think I did give some feedback at the end of the year, and PLM is by far having spoken with other colleagues like the best module that we could have done in our final year, to help prepare us for the future that we are going into." [interviewee 1]

"For me, it shifted from being a student to be a pharmacist" [interviewee 3]

"I thought it was really useful. I thought it helped me quite a lot. It changed my angle of thinking from being a dispenser to be more of the pharmacist." [interviewee 4]

"I use what I've learned in PLM to do that in a nice and constructive way, instead of being condescending and making them feel stupid. I use some of the scenarios and situations that happened to me in PLM when giving feedback kind of situation." [interviewee 6]

4.2.2.4. Expectations and employability

Students mentioned PLM as a valuable module to add to their curriculum and referred to use experiences during the module as examples to evidence their skills at interviews for job positions. All students interviewed, even though they were doing the pre-registration period at that time have already found a job after qualifying.

Is definitely a good thing to have gone through to add on your CV. [interviewee 2]

Recently I've been in interviews for further positions within the hospital and there were very similar questions related with those skills, like time management skills, and in fact I used an example from PLM to describe how I developed my time management skill. [focus group participant 3]

Yes! I think, so like I said I used as example PLM in one of my interviews for hospital positions. [interviewee 5]

Some students also declared positive feedback from pre-registration tutors about competency and related it in part to PLM.

I can say that in the first few months, my boss was stunned by my competency doing the normal tasks that other pre-registration students could take a long time to learn. In part it was because of PLM. [interviewee 1]

5. Discussion

Simulation-based education is a current practice that complements traditional education methods in different fields of knowledge. (3) In healthcare education, simulation methods are progressively becoming popular, and its implementation has been recommended by WHO, despite the moderate level of evidence on its effectiveness. (2)

Systematic reviews revealed that different simulation methods could be used in pharmacy education. Training on technical tasks has been the primary focus of simulation during the last years. However, a change has been observed and, increasingly, it is used as a setting in which to assess and develop teamwork and communication skills. (6)

Students' perceptions of how simulation is used in pharmacy education process are essential to assess the effectiveness of this methodology and for further encouragement of regulatory bodies to require this learning approach. It is also relevant for educational institutions to reinforce the implementation of simulation throughout pharmacy curriculum. This study aimed to explore, understand and describe student perceptions of Pharmacy Leadership and Management (PLM), as a simulation-based module developed by The University of Nottingham and the impact on learning in students as future healthcare practitioners.

Considering the Cohort of students who first experienced PLM after implementation, the results evidence that, overall, students had a positive experience and considered PLM an opportunity to consolidate knowledge from other modules while training practice. It is also evidenced by other studies in which simulated clinical practice and role-playing environments revealed to be useful in consolidating knowledge across undergraduate courses.(9)

Students described PLM as a challenging module, mainly because of practical sessions where they had to simulate real-world scenarios. Students' perceptions also indicated that simulation is the most important component of PLM and the most frequent reason given for satisfaction. The unexpected nature of scenarios and the different kind of tasks needed to perform during simulation was valued by the students, as well as the ethical cases they needed to face. Even though some of them considered scenarios unrealistic and logistically hard to implement, it was consensual that simulation helped them to developed useful skills used during pre-registration period and future practice. In addition, results also evidence simulation as a more effective approach to demonstrate

theoretical examples given during lectures. In PLM is observed students' perceptions similar to what is described in literature where simulation offers unique learning environments with flexible and practical assessment opportunities. (10)

As assessed by Bray et al., simulation activities provide opportunities for students to practice their skills and integrate knowledge, communication, professionalism, and clinical application.(11)

In PLM students attributed the feeling of being more prepared to practice to the confidence empowerment given by the skills devolved during training sessions. They evidenced to be more prepared to interact with other health professionals and to communicate with patients, adapting their language depending on the message receptor. Participants in this study expressed the opinion that the team represented a constructive way of developing personal skills, such as communication, leadership, teamwork and delegation skills. The workload during training sessions and all course required the ability to prioritise tasks and delegate in team individuals. Most students considered to be more employable after completed PLM as they mentioned PLM as a relevant experience to include in their curriculum and essential to evidence some skills when applying for a job position.

The study design adopted allowed to explore the experience of PLM as a simulation-based module. Nevertheless, phase one survey was designed in a global perspective of PLM by module convenors and included more information useful particularly for PLM improvement, which required a detailed selection of interest questions to be included, considering the propose of this study. The main investigation was conducted during a three months international investigation internship, co-funded by Erasmus+ programme of European Union, at The University of Nottingham. The short duration of this internship influenced the process of scheduling interviews and the focus group, despite the lack of participants willing to be interviewed in phase II, compared with those who had manifested to be available in phase I survey. A limited period of module observation was conducted during the internship which permitted a conception of all different moments of PLM.

6. Conclusion

This study aimed to explore, understand and describe student perceptions of Pharmacy Leadership and Management (PLM) as a simulation-based module and the impact on learning as future healthcare practitioners. Through this research it was demonstrated that students after completing PLM felt more prepared to be future health professionals, assigning that feeling to the opportunity of consolidating knowledge from previous modules in a safe environment for practice. Taking a mixed methods approach proved beneficial because allowed to explore further the students' experience and their perception of the different moments and specifications of this module.

PLM simulation experience, as described by students, has developed their communication, leadership and delegation skills. Working on groups was referred to be fundamental to deliver tasks throughout the module successfully and to develop the skills mentioned previously. This description is consistent with the changes observed during the last years, where a change has been observed and, increasingly, simulation is used as a setting in which to assess and develop teamwork and communication skills, instead of training technical tasks.

Experiences during simulation were often mentioned by students as relevant when applying for a job. This suggests a positive impact of PLM on students' employability and a distinguishing factor when compared with other students who had not be enrolled in the module.

The positive experience described by students regarding PLM, and particularly with the simulation approach reinforces the importance of using patient simulation in pharmacy practice activities and encourages teaching institutions to consider this methodology, despite the barriers identified for implementation.

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Annexes

A.1. Phase II - Consent form

CONSENT FORM
(Draft Version 0.1 / Final version 1.0: 7 February 2017)

Title of Study: Student perceptions of Pharmacy Leadership and Management (PLM) as a simulation-based module

Name of Researcher:

Name of Participant: **Please initial box**

1. I confirm that I have read and understand the information sheet version number 1.0 dated 7 February 2017 for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without legal rights being affected. I understand that should I withdraw then the information collected so far cannot be erased and that this information may still be used in the project analysis. ☐
3. I understand that relevant sections of my medical notes and data collected in the study may be looked at by authorised researchers (see participant information sheet) from the University of Nottingham, the research group and regulatory authorities where it is relevant to my taking part in this study. I give permission for these individuals to have access to these records and to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐
4. I understand that the interview will be recorded and that anonymous direct quotes from the interview may be used in the study reports. ☐
5. I understand that the analysed information collected about me will be used to support other research in the future, and may be shared anonymously with other researchers. ☐
6. I agree to take part in the above study. ☐

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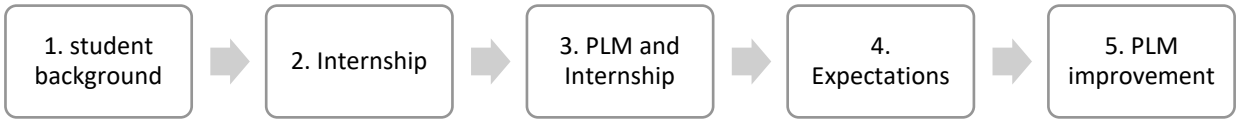
_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

2 copies: 1 for participant, 1 for the project notes

A.2. Interview topic guide

Semi-structured interview flowchart



Interview questions

1. Background (Past):

1.1. Demographic Context:

- Gender information
- Where are you from?
- What is your first language?

1.2. Previous Experience

- How much previous UK community pharmacy experience have you had before the pre-registration?

2. Internship (Present):

- How are you doing (to date) in your internship?
  - Work place
  - details of work
  - relationship with the tutor
  - are you enjoying your work place?
- What did you like most and least about your internship?

3. About PLM and internship

- What do you remember about PLM?
- How has PLM helped to prepare you for practice?
- How PLM helped you to develop personal skills that you use now during internship?
  - communication skills (with patients or with healthcare professionals – GPs, Consultants, Nurses, other Pharmacists, etc…)
  - time management
  - leadership
  - team working
  - decision making skills (scenarios?)
- In your final year, what were your thoughts on the usefulness of PLM to future practice?
  - Now X months into your internship has your opinion about PLM changed?
  - If so, what?
- Do you think you were more independent during your pre-registration internship attend the PLM module?

- Why?
- Is that because it improved your confidence and motivation to do the job?

4. Expectations (future):

- (future place of work) What do you want to do next after qualifying?
  - In which pharmacy sector do you want to work?
- Why do you want to work there?
- How PLM helped you to choose it?
- How has PLM made you feel more employable?
  - management skills
  - could you manage a pharmacy and a team?

5. Final questions (PLM improvement):

- If you could change or add something to PLM that prepares you better to do the internship what would it be?
- What could be improved?