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Why you should read this article
- To reflect on the benefits of using simulation-based learning at university
- To investigate the type of skills nursing students can develop by acting out simulation scenarios
- To explore a method of involving students in the academic revalidation of an undergraduate nursing programme

Skill acquisition and assessment through clinical simulation: a small-scale evaluation of the student perspective

Scott Inglis and Louise Nelson

Key points
- *Simulation is the artificial representation of a real-world practice scenario that supports students to develop their skills through experiential learning*
- *Simulation provides a consistency of experience that nursing students cannot obtain during clinical placements*
- *Skills that nursing students can practise, gain or improve through simulation include fundamental nursing skills, communication skills, psychomotor skills and reflective skills*
- *Taking part in simulation exercises before undertaking a first placement can increase the confidence of first-year nursing students*
- *Using objective structured clinical examinations in preregistration nursing programmes could support skill acquisition and assessment*

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Abstract

In simulation-based learning, nursing or medical students are exposed to hypothetical scenarios which mimic the realities of clinical practice. This provides them with an opportunity to practise and reflect on clinical skills in a safe environment. This article explores the perspectives of two students on a preregistration mental health nursing programme on simulation. The aim of this small-scale evaluation was to find out what students learn from clinical simulation sessions and the effect simulation may have on practice. The aim was also to inform the programme's academic revalidation and therefore improve the university's offering. Taking part in simulation before undertaking their first placement increased the students' confidence and four groups of skills that they had practised, gained or improved through simulation were identified.

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Keywords

career pathways, clinical skills, education, educational methods, nursing care, pre-registration education, professional, simulation, students, universities

Simulation refers to the artificial representation of a real-world practice scenario that supports students to develop their skills through experiential learning, providing opportunities for repetition, feedback, evaluation and reflection (Nursing and Midwifery Council (NMC) 2018a). In a clinical simulation session, nursing or medical students are exposed to hypothetical scenarios which mimic the realities of clinical practice. Simulated learning is increasingly used in undergraduate nursing education to teach, and assess the acquisition of, clinical skills (Ricketts 2011). This article describes a small-scale exploration of what two students on a preregistration mental health nursing programme at the University of Cumbria learned from participating in clinical simulation sessions in their first year of study.

Simulation-based learning

One of the strengths of simulation-based learning is its progressive nature, as it can reproduce any clinical situation from basic tasks to complex scenarios comprising multiple interconnected activities. A technique commonly used in the simulation lab involves nurse educators controlling and adjusting the scenario according to the actions of the student (Bland et al 2014). This also means that scenarios can be adjusted to the nursing student's stage of development and learning needs, thereby providing a consistency of experience that students cannot obtain during clinical placements. It also provides them with immediate feedback and a space for reflection in a non-threatening and safe environment (Berragan 2011).

Simulation in the learning environment can have varying levels of realism. In high-fidelity simulation, the aim is to mimic the clinical situation as closely as possible; programmable mannequins called human patient simulators are often used to that effect (Pike and O'Donnell 2010, Ricketts 2011). In low-fidelity Stanislavski-style simulation, actors play the role of patients (Smith et al 2015). Simulation can also use simulated online communities where narratives encompass numerous characters and environments, which provides datasets and/or scripts for simulation activities (Walsh and van Soeren 2012). Optimal learning through simulation requires effective communication between all parties, regardless of the style of simulation used (Ricketts 2011, Nestel and Bearmann 2015, Smith et al 2015).

Using simulation at university

Since the publication of Realising Professionalism: Standards for Education and Training (NMC 2018a, 2018b), the restriction on the quantity of simulation that universities can use in preregistration nursing programmes has been lifted; previously, the number of hours of simulation used to be capped at 300 (Merrifield 2018, NMC 2018a, 2018b).

The NMC standards specify that higher education institutions and practice partners must ensure students 'are enabled to learn and are assessed using a range of methods, including technology enhanced and simulation-based learning appropriate for their programme' (NMC 2018a) and that 'nursing students will learn and be assessed in theory, simulation and practice environments' (NMC 2018b). However, before increasing the time allocated to clinical simulation in preregistration nursing programmes, academics need to be confident that simulation-based learning is relevant to students and recognised by students as relevant. To inform and develop long-term plans for investing in clinical simulation, we need to understand the effects of clinical simulation on practice.

Nursing students have often reported that they learn more in clinical practice than during theory lessons at university (Sharples and Elcock 2011). The authors of this article, both academics at the University of Cumbria, wanted to explore how this gap between theoretical and practice learning can be reduced and decided to focus on clinical simulation. We sought to

explore the views and perceptions of students to understand their experience of simulation, enhance the learning techniques used at the university, and enable a better integration of students into practice. We also undertook this small-scale exploration of students' views regarding simulation as part of the university's process of revalidation of its education programmes, planning to use the findings to improve our offering. As per the principles of co-production (Lambert and Carr 2018), we also wanted to involve our 'service users' – that is, our students – in that process, as their voice is central to decision-making.

During the preregistration mental health nursing programme at the University of Cumbria, students undertake three practice modules – one in each year – as well as various skills days, for which they choose which skills they want to practise via simulation. This type of student-led learning can promote student engagement and retention of knowledge (Au et al 2016). Greater engagement with a learning topic, which clinical simulation produces through its interactive nature, leads to a deeper understanding and improved retention of knowledge (Biggs and Tang 2011), which in turn improves clinical reasoning and, eventually, patient outcomes (Hoffmann et al 2017).

Exploring two students' experiences

We chose to interview students on their experience of the clinical simulation sessions they had participated in during their first year of study. Simulation sessions for first-year students would be designed to measure their acquisition of specific skills, rather than measuring their performance on multiple levels, as would be the case of simulation sessions for more advanced students. The type of simulation used involved nurse educators adjusting the scenario according to the actions of the student.

Simulation sessions took place within the first 12 weeks of the first year of study and initially focused on fundamental nursing tasks such as taking and recording physical observations. The use of human patient simulators enabled academic staff to compare the simulator settings with the recordings made by students, thereby facilitating the accurate completion of the observation exercise. The sessions typically lasted three hours, with the first hour dedicated to instruction in the methodology and two hours for students to practise the skill.

One cohort of students enrolled on the preregistration mental health nursing programme at the University of Cumbria was invited to participate. Two students, Lucia and Tom, who had a particular interest in simulation and the ability to take part in interviews within a short timeframe, came forward. With their agreement, we are using their real names.

The two students were interviewed, while in their second year, on a one-to-one basis by the two authors of this article. The interviews were conducted using a semi-structured questionnaire, recorded, transcribed and thematically analysed by the authors. Four types of skills the students had practised, gained or improved through clinical simulation were identified:

- Fundamental nursing skills.
- Communication skills.
- Psychomotor skills.
- Reflective skills.

Fundamental nursing skills

First-year nursing students in mental health nursing at the University of Cumbria are introduced to fundamental nursing skills – notably applied anatomy and physiology, hand hygiene and medicine administration – early in the curriculum through practical classes, guided independent study, simulation sessions and a first placement. That first clinical placement is formatively assessed – before a second placement later in the year, which is summatively assessed – to ensure students meet the relevant NMC standards and essential skills clusters (NMC 2018b). The rationale for teaching fundamental nursing skills at the beginning of the programme, before students undertake their first placement, is that fundamental skills are essential in providing holistic care (Delves-Yates 2015) and keeping patients safe. They are separate components, but need to be considered as a whole, so that a patient is seen as a person, not a set of symptoms.

Lucia and Tom found it valuable to take part in clinical simulation sessions before their first placement and highlighted the confidence they derived from this, as neither had prior experience of providing care. For example, they commented on the usefulness of carrying out a simulated medicines round:

'It made sure that your hand hygiene and putting medication into little pots and things was spot on and helped you understand the medication sheet.' (Tom)

'We did a medication round, the tutor's taught us what to look out for, the do's and don'ts, that was really helpful and transferable into practice.' (Lucia)

Communication skills

At the University of Cumbria, the basics of communication are taught in the first year of the curriculum and, in the second and third years, students receive training in more advanced communication skills. In all fields of nursing, communication is at the heart of practice (Pike and O'Donnell 2010, Sharples and Elcock 2011, NMC 2018b). Nurses often need to use formal ways of communicating with patients, but the ability to use phatic communication – that is, simply 'having a chat' – is important in developing optimal relationships with patients. It will affect how patients perceive nurses and how nurses perceive themselves, and ultimately enhance the quality of their interactions (Morrisey and Callaghan 2011). Phatic communication is often overlooked in nurse education, but there is growing evidence of its importance as a 'social lubricant' before more formal interventions (Hudak and Maynard 2011). In mental health and learning disability nursing, the use of phatic communication as a means of conveying empathy is well established (Barker 2011, Morrissey and Callaghan 2011).

In the interviews with Lucia and Tome, we discussed whether communication skills, particularly phatic communication skills, can be taught via clinical simulation.

'We did role play to learn communication skills, what to say in particular situations… [I] would have liked more on the basics, when patients ask you questions [you don't necessarily know] how to respond to, particularly personal questions.' (Lucia)

'It was really good to have to hone in [on] the types of questions that you would ask and make it conversational… It's nice to have someone looking in on the conversation helping you out.' (Tom)

Lucia explained that the simulation scenarios were acted out by students and that initially, because they did not yet know each other, speaking to a peer playing a patient was congruent with speaking to a patient, but that later, after the students had become more familiar with each other, they did not take the simulation scenarios so seriously. This is obviously a drawback; however, the fact that the students may approach simulation exercises in a more casual manner can also contribute to their learning, as they feel more relaxed and are less anxious about making errors or being judged.

Psychomotor skills

The aphorism 'practice makes perfect' is often used to justify the inclusion of clinical simulation in health education (Hoffman et al 2017). The development of psychomotor and procedural skills in nursing requires repetitive practice combined with informational feedback from the teacher, another expert or a simulator to correct performance errors (Oermann et al 2015). Repetition, coupled with visualisation and rehearsal, acts to embed new skills into the short-term memory and muscle memory (Sanders et al 2008). Yamazaki (2015) showed that repeated short-term practice of a physical skill is augmented by a short period of rest between practice sessions.

Tom described how practising a mechanical task such as assessing respiratory rate in a simulation scenario supported him in developing that particular skill:

'I was, to begin with, awful at counting resp[irations]s because there is something about doing two things at once… It's like rubbing your stomach and patting your head… Once you practice it a few times, you get more accurate, and I think you want to be getting accurate in clinical simulation before doing it in an emergency.'

Clinical simulation had enabled Lucia to learn how to perform urinalysis, since repeating the task during simulation had embedded it into her muscle memory. However, during the interview, she explained that she did not know exactly what the

outcomes of urinalysis meant, how they related to early warning signs and what the next steps would be. She recognised that she had focused on learning how to undertake this observation rather than understanding what it means. She felt that, during clinical simulation, students concentrated on the task rather than on the effects on the patient. This demonstrates the importance of ensuring that simulation is well constructed and incorporates the learning of soft skills as well as practical skills (Biggs and Tang 2011, Hoffmann et al 2017).

Reflective skills

Anderson (2016) considered how offering students an opportunity to debrief can support them in their clinical practice. In a study by Taschuk et al (2017), students 'felt less overwhelmed in new clinical practice and felt that the sharing process helped them feel more energised, dynamic and spontaneous'. At the University of Cumbria, after a simulation session, students have the opportunity to reflect on their experience with the tutor or instructor and their peers. This can take the form of a complex colouring exercise, the purpose being to energise students and free their minds. Lucia and Tom reported that this had a 'meditative and calming effect', that they felt less pressure and anxiety when sharing with peers and were better able to concentrate on new information. The role of the post-simulation debrief requires refinement to become more effective (Jaye et al 2015).

Reflecting on a simulation session, Tom was able to articulate some of the benefits of the technique:

'I suppose what clinical simulation does is almost construct everything in a textbook way, like a model, because there is a lot less stress(es), there aren't any patients shouting at you. So it allows you to really break down and hone each individual aspect.'

'It's about teaching people to be calm on their feet and calm in their actions… To respond in a relaxed sort of way is always going to be better than to panic or raise your voice.'

During her first clinical placement, Lucia had written down reflections in her portfolio and, in the first few weeks, had kept a diary.

'I was not sure how to act on placement… I struggled initially with the feeling that I needed to be busy, but I now realise that I need to be sitting, talking, or listening… it is a good busy.'

Tom and Lucia's perspectives reinforce the findings of Taschuk et al (2017) that students who have gained some experience through clinical simulation are less focused on concrete tasks, and have the confidence to engage with patients without a task to act as an icebreaker, during clinical placements.

Improving our preregistration nursing programme

During the interviews with Tom and Lucia, we discussed several challenges that nursing students face. One of these challenges is the fact that, as soon as a student arrives on a clinical placement, patients, not recognising their status, expect the same of them as of registered nurses. Sharples and Elcock (2011) highlight that this as a common challenge, since patients are generally unaware or uninterested in differing grades and roles of staff. While students wear a distinctive uniform that does mark them out, they often have to clarify their role, especially at the start of placements (Morrissey and Callaghan 2011, Sharples and Elcock 2011).

Lucia felt that, overall, she would tend to lose her clinical skills when she did not use them, a challenge compounded by the fact there are often large time gaps between students' clinical placements. How can students be supported to maintain their practice skills between placements? Tom and Lucia suggested that, between placements, there could be a weekly 'keeping in touch day', during which clinical skills labs would be open to students for staff-facilitated drop-in sessions. We thought that this could be done once a month (more often would be challenging for logistical reasons), possibly as observer days. Potentially we could also use alternative models such as the Cumbria Learning and Improvement Collaborative, where junior students are supported and supervised by senior students (Gosling 2014). Lucia further suggested that we could use these 'keeping in touch days' to enhance the learning modules by feeding into them what students had experienced on their clinical placements, which could make learning more 'real' and practice-oriented. Using action-based learning and breaking

down larger student groups into small teams, we could look at one of the student's experience on their placement in more depth, potentially even recreating that experience in the clinical simulation lab (Gosling 2014).

Tom and Lucia reported that taking part in simulation exercises before undertaking their first placement had increased their confidence. This is crucial for nursing students, who need to rapidly adapt to working with different teams throughout their training. Being able to work well within a team is a core expectation of nurses and the ability to fit into a team is seen as desirable by clinical staff and nursing students alike (Sharples and Elcock 2011).

The interviews with Lucia and Tom were also an opportunity for us to discuss the use of objective structured clinical examinations (OSCEs). OSCEs are competence-based assessments that have become an important method of assessing clinical competencies and skill performance in medical education (Ravikirti and Gopalakrishnan 2018). OSCEs are used effectively in the midwifery preregistration curriculum and a recent review has confirmed their value in nursing education (Goh et al 2019). Using them in our preregistration mental health nursing programmes could support skill acquisition and assessment.

Conclusion

This small-scale piece of research has informed the formulation and delivery of the new preregistration mental health nursing programme [Q:1 correct as edited?] at the University of Cumbria, which was launched in September 2019. It has informed our views on clinical simulation and enabled us to increase the range of simulation activities offered to nursing students.

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