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- Health policy priority of integrating mental and physical health
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# Shared simulation learning for adult and mental health branch students

## Key points

**The co-occurrence of physical and mental health problems is a challenge for nurses**

**Simulation-based learning can improve students' knowledge and confidence**

**High-fidelity simulation using actors and computerised manikins promotes authenticity**

**Mixing students from both adult and mental health nursing in simulations enhances the learning experience**

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**Abstract** The co-occurrence of physical and mental health problems can significantly diminish the quality and length of a person's life. This article describes how a high-fidelity simulation-based learning programme was piloted with pre-registration students from adult nursing and mental health nursing at King's College London with the aim of enhancing their ability to manage patients with co-occurring physical and mental health problems. Overall, the programme improved students' knowledge and confidence. This pilot may encourage others to consider the use of simulation-based learning to help meet pressing healthcare challenges.

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Parity of esteem between physical health and mental health is a priority of UK health policy, while co-occurring physical and mental health problems are pressing challenges for nurses. However, student nurses are not always well prepared to manage patients who have both physical and mental health problems. To improve students' knowledge and confidence in that area, a simulation-based learning (SBL) programme has been developed and piloted at King's College London, with a mix of students from adult nursing and mental health nursing.

## Co-occurring physical and mental health problems

Mental and physical health are interlinked, with problems in one area often affecting the other. Among people with mental health problems, 46% have long-term physical health conditions and the life expectancy of those with severe mental illness is, on average, approximately 20 years lower than that of the general population

(Thornicroft, 2011). Among people with long-term physical conditions, 30% experience mental health problems, including depression and anxiety disorders, leading to significantly poorer health outcomes, reduced quality of life and increased care costs (Naylor et al, 2016).

To reduce premature mortality among people with serious mental illness, NHS England has been called on to "ensure that by 2020/21, 280,000 more people living with severe mental illness have their physical health needs met" through better detection and access to evidence-based assessment and intervention (Mental Health Taskforce, 2016). The King's Fund identified 10 priority areas for physical and mental healthcare integration (Naylor et al, 2016), and the Department of Health and Public Health England (2016) have published guidance on how mental health nurses can help improve the physical health of people with mental health problems.

Nash (2018) points to a double irony: much of the increased mortality among



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people with severe mental health problems is attributed to conditions that are well managed in the general population, such as respiratory and circulatory diseases, and people with a long-term health condition or a serious mental illness are already in contact with secondary services and/or their GP. Nevertheless, the quality and length of the lives of people with co-occurring physical and mental health problems can be significantly reduced.

A group of clinical teachers at King's College London considered options for developing student nurses' knowledge, skills and confidence to care for people with co-occurring physical and mental health problems. The solution had to account for the challenge of limited placement opportunities and the haphazard and opportunistic nature of learning in the clinical environment. SBL offered one possible solution.

### Simulation-based learning

Simulation gives students opportunities to develop technical and non-technical skills through the re-creation of an experience that is as close to reality as possible (Bradley, 2006). They learn experientially, using previous knowledge and experience to construct new knowledge. Key to this process is reflection 'in action' as scenarios unfold, and 'on action' as they are debriefed, which facilitates the transformation of students' experience into practice-based knowledge (Schön, 1991). Box 1 lists different types of simulation.

Literature reviews of simulation in nurse education report benefits in terms of students' confidence, knowledge, clinical skills and interdisciplinary experiences (Vandyk et al, 2018; Williams et al, 2017; Foronda et al, 2013). However, these authors also note the potential for simulation to cause anxiety among students, particularly in terms of being watched by others. In spite of this, intermediate- and high-fidelity simulation has been used, with encouraging results, to develop the confidence of mental health nursing students to recognise and manage physical deterioration (Felton and Wright, 2017; Chadwick and Withnell, 2016).

In a study by Unsworth et al (2012), students in mental health nursing were joined by students in adult nursing in one simulation scenario. Participants identified this mix as supportive and valued learning from each other. There was some role polarisation, as adult nursing students focused on physical complaints and mental health students on psychiatric symptoms, but the sharing of observations and collec-

### Box 1. Types of simulation for learning

Chadwick and Withnell (2016) identified different types of simulation, such as role play with trained people or paid actors, films, videos, patient manikins and computerised physiological models. The degree of fidelity or realism afforded varies:

- Low-fidelity simulation: techniques such as films or videos
- Intermediate-fidelity simulation: techniques such as manikins
- High-fidelity simulation: techniques such as advanced computerised models or human patient simulation/role play

tive reasoning took place. In contrast, scenarios run with only mental health nursing students were less beneficial.

### Our pilot programme

Willis (2015) recommended new training approaches to create a workforce that is able to integrate mental and physical healthcare, while the Nursing and Midwifery Council (2018) requires that students are exposed to all four fields of nursing practice, have the opportunity to collaborate with peers, and "learn [...] using a range of methods, including technology-enhanced and simulation-based learning". However, SBL for teaching students how to deal with co-occurring physical and mental health problems remains under-used.

In 2016, we designed and piloted a high-fidelity SBL programme for pre-registration students in adult nursing and in mental health nursing. Simulation Integrating Mental and Physical Healthcare Learning (SIMPL) brings together both disciplines with the aim of increasing knowledge and confidence to manage acute scenarios that combine physical and mental health.

Participants were invited from two cohorts of progression-point-two, post-graduate pre-registration students. We had 50 places and a waiting list for students if some dropped out. An email was sent explaining the programme and participation requirements. The programme was piloted with 49 students: 25 from mental health nursing and 24 from adult nursing. Clinical placement hours were signed off against pilot participation.

### Scenarios

SIMPL was developed with simulation technicians and colleagues who had experience of SBL. The clinical teachers drew on their areas of expertise to design four scenarios:

- A patient with an extensive cardiology history and associated anxiety;
- A patient with post-encephalitis behavioural changes;

- A patient who self-harms and has acute wounds;
- A patient with an exacerbation of acute asthma who has a diagnosis of schizophrenia and hears voices.

The scenarios were shared with four other colleagues, including one medical specialist, to ascertain validity. They involved one actor and SimMan, a manikin with embedded software and a remote-control function that allows a technician to adjust its physiological parameters in real time in response to students' interventions. The actor:

- Wore an earpiece so the technician could instruct them on how to respond, behaviourally and/or verbally, to changes in their vital signs;
- Received the scenarios and met the clinical teachers and technician beforehand to agree how the scenarios should be played out;
- Wore a prosthetic wound for the self-harm scenario to enhance realism.

### Simulation session

The simulation session lasted half a day and was delivered three times. In each scenario, two mental health students and two adult nursing students worked together to assess and manage the patient. The remaining students observed via video link. The scenarios were run consecutively and students swapped roles, giving each one the opportunity to act as the nurse.

To enhance authenticity, a nurse educator experienced in simulation took part in each scenario in the role of either a second nurse or the patient's relative. They could also help if students were struggling with any aspect of the scenario.

Each scenario lasted for around 10 minutes and was followed by a 20-minute debrief attended by all students and facilitators. The Pendleton debrief tool (Pendleton et al, 1984) and the Diamond debrief tool (Jaye et al, 2015) were used. The former is more suited to exploring the psychological aspects of care and the latter the technical elements; both are designed for SBL and allow structured reflection.

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### Evaluation

Evaluative data was gathered using a simple questionnaire administered before and after the simulation session. Participants rated their knowledge and confidence to manage physical and mental health problems against a 5-point Likert type scale (from 'outstanding' to 'very limited'). Open-ended questions allowed them to add comments. They were also invited to complete a simple questionnaire on their experience of the SIMPL programme.

Quantitative data was subject to categorical counts, while qualitative data was reviewed independently by two team members to identify recurring themes. Students' evaluative data remained anonymous and videos were deleted after the debriefings.

### Findings

#### Feedback from adult nursing students

Table 1 shows how students in adult nursing rated their knowledge and confidence to manage co-occurring mental and physical health problems before and after the simulation.

In their qualitative comments, the students reported an increased knowledge of the link between mental and physical health. Many cited the development of their communication skills. One commented that the simulation had been useful to learn "talking tactics and approaches from my mental health colleagues, such as the importance of staying calm, being less task-orientated and approaching the patient on an equal level".

This quotation highlights the value students attributed to learning alongside peers from mental health nursing. Adult nursing students also gained a better understanding of what mental health nurses do.

Some comments also pointed to an increase in students' confidence in practice. As an example, one student said the simulation had taught them "to take more notice and to make an active effort to care for the psychological needs of patients".

#### Feedback from mental health students

Table 2 shows how students in mental health nursing rated their knowledge and confidence before and after the simulation.

Their qualitative comments mirrored those of their adult nursing peers. Enhanced knowledge gave students a greater understanding of the needs of patients and the SIMPL programme acted as a "catalyst to explore [...] some of the basic physical emergencies, for example,

**Table 1. Adult nursing students' ratings of their knowledge and confidence before and after simulation (n=24)\***

	Number of students rating their knowledge or confidence as:					
	Outstanding/ good		Adequate		Poor/ very limited	
	Before	After	Before	After	Before	After
Knowledge of mental health	2	8	2	11	20	4
Knowledge of physical health	12	20	9	3	3	0
Confidence to manage mental health	2	8	6	13	16	2
Confidence to manage physical health	18	19	3	3	3	1

\*One student did not complete the post-simulation questionnaire.

asthma attack and suspected heart attack". Students also emphasised opportunities for developing communication skills, particularly in respect of team working, as "communication in your team makes all the difference".

Interdisciplinary learning was valued for the opportunities it provided to appreciate the 'role and tools of the physical health nurse'. Some comments point to an increase in practice confidence, as students said they had gained "more confidence with physical health needs" or "more knowledge of physical health and the ABCDE [airway, breathing, circulation, disability, exposure] assessment".

#### Students' views of SIMPL

Overall, evaluations of the SIMPL programme from both groups were very favourable. The use of an actor and SimMan provided authentic simulations that the students found engaging. The collaborative work and interdisciplinary learning were again emphasised as being particularly valuable. Many requested more opportunities for this type of learning:

*"We need this kind of training and group work more often."*

*"We really learnt from each other and taught each other."*

Some improvements to SIMPL were proposed, including more scenarios across different healthcare settings and smaller groups in each scenario. Some students suggested that simulation could be used more specifically within each student group – for example, for mental health nursing students to work through physical health scenarios.

### Discussion

As anticipated, both student groups were more familiar with their respective disciplines, but it is interesting to observe the extent to which their knowledge and confidence developed in the other discipline.

Among adult nursing students, there was an overall improvement in knowledge and confidence to manage mental health problems, most evident in the sharp drop in the number who rated these as 'poor' or 'very limited'. Adult nursing students referred to the development of knowledge, practice confidence and non-technical communication skills, and emphasised the value of interdisciplinary learning, as they were able to pick up "talking tactics and approaches" from their mental health nursing peers.

There was also evidence of improvements in mental health nursing students' knowledge and confidence to manage physical health problems between pre- and post-simulation ratings. Comments echo those of adult nursing students, with the addition of reported developments in technical skills such as physical assessment processes and vital signs reading.

These findings reflect those in the literature that report benefits from SBL for student nurses, including enhanced confidence, knowledge and clinical skills (Felton and Wright, 2017; Chadwick and Withnell, 2016). They also echo the value of interdisciplinary learning noted by Unsworth et al (2012).

The modelling that each discipline provided allowed learning through the direct experience of others 'in action'. Participants then reflected 'on action' and exchanged knowledge during debriefing. These features of the experience were

**Table 2. Mental health nursing students' ratings of their knowledge and confidence before and after simulation (n=25)\***

	Number of students rating their knowledge or confidence as:					
	Outstanding/ good		Adequate		Poor/ very limited	
	Before	After	Before	After	Before	After
Knowledge of mental health	19	17	5	1	1	1
Knowledge of physical health	1	3	8	7	16	9
Confidence to manage mental health	21	15	4	3	0	1
Confidence to manage physical health	2	6	7	4	16	8

\*Seven students did not complete all items in the post-simulation questionnaire

highly valued and provided opportunities that may not have been available in mono-disciplinary groups.

An unexpected finding was that, in some instances, mental health nursing students rated their knowledge and confidence relating to their own discipline less positively after the simulation than before. This may be due to a non-response bias or to features of the simulation exercise itself; for example, the scenarios may have included psychiatric diagnoses of which students had no direct experience, which led them to re-appraise their capabilities. Alternatively, anxiety about participation in a simulation may have undermined some students' confidence. The reasons are not clear, but this is an important finding that warrants further investigation.

The combined use of an actor and SimMan strengthened the students' learning experience by promoting authenticity. To our knowledge, the use of an actor and SimMan in simulation scenarios in which adult nursing and mental health nursing students learn to manage co-occurring physical and mental health problems has not previously been reported in the literature. While students appreciated the use of SimMan and actors together, it is not possible to determine their relative importance to the learning process. Further investigation of high-fidelity SBL is warranted and there is a need to compare the effectiveness of different types of simulation (Vandyk et al, 2018).

### Limitations and further steps

There are limitations to this study, including the fact that students were self-selected and may, therefore, have been more motivated than others. Additionally,

the uncontrolled pre/post-test design and use of a non-validated questionnaire make it difficult to draw firm conclusions for education or practice. This was designed as a pilot study to gauge the feasibility of the SIMPL programme, its potential value and acceptability to students.

Foronda et al (2013) make suggestions for the robust evaluation of SBL, including the use of mixed methods and multiple validated instruments. They also acknowledge that the most powerful research agendas will seek to establish the link between simulation, clinical performance and patient outcomes. We believe there is sufficient evidence to warrant further development and formal evaluation of the SIMPL programme.

We are currently preparing for a formal evaluation research project of SIMPL and are looking at the feasibility of introducing the programme into the curriculum.

### Conclusion

Our purpose was to design and pilot a high-fidelity SBL programme that would develop students' knowledge and confidence to care for patients with co-occurring mental and physical health problems. Findings suggest that the SIMPL programme is beneficial. Students reported the development of technical and non-technical skills, and they valued this type of experiential learning, particularly the combination of disciplines and the engaging re-creation of clinical situations.

While it is not possible at this stage to measure the impact of the programme on practice or draw firm conclusions for education providers, our pilot may lead others to consider the use of SBL. We believe this flexible educational method has the

potential to address pressing contemporary challenges in healthcare, such as the reduced length and quality of life of people with co-occurring physical and mental health problems. **NT**

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