



ORIGINAL RESEARCH

Training the next generation of simulation educators: a scoping review of peers and near-peers undertaking Faculty roles within undergraduate health professions simulation

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ABSTRACT

Introduction

Simulation-based education (SBE) is integral to undergraduate health professions training but faces challenges related to scalability and resource demands. Involving peer and near-peer students in simulation faculty roles may enhance capacity while supporting learner engagement through shared experience and cognitive congruence. Despite its potential, the use of student faculty in SBE remains underexamined, particularly regarding their roles, training, assessment and impact. This scoping review aims to map existing evidence, identify knowledge gaps and inform the future development of peer- and near-peer simulation educators.

Methods

Following Arksey and O'Malley's methodological framework and PRISMA-ScR guidelines, we conducted a scoping review of studies involving peer or near-peer students in formal faculty roles within undergraduate SBE. Using the Population-Concept-Context framework, we searched eight databases for relevant studies published between 2005 and 2024. Included studies were screened by multiple reviewers. Data were extracted using a standardized template and analysed both quantitatively and thematically.

Results

Thirty-eight studies were included, predominantly from the USA, Europe and Australia. Student faculty were most commonly involved in medical or nursing education and assumed roles in scenario design, debriefing, technical operations and simulated-patient portrayal. Training varied widely in format and duration, with limited alignment to established standards. Supervision ranged from minimal to structured mentorship, though formal quality assurance was rare. Learners generally reported high satisfaction, citing increased comfort and relatability. Educational outcomes were similar to faculty-led sessions, though concerns about feedback quality were noted. Student faculty reported improved confidence, teaching skills and professional development. Institutional benefits, including potential cost savings, were inconsistently measured and largely anecdotal. Challenges included training demands, supervision logistics and peer-related dynamics during feedback.

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Discussion

Peer and near-peer faculty can enhance learning within SBE while gaining valuable skills themselves. However, inconsistencies in training and governance present risks. Existing frameworks, such as those from the Association for Simulated Practice in Healthcare (ASPiH), should be adapted for student educators. Further research is needed to establish best practices, assess clinical impact and explore sustainable, scalable models for peer-led simulation programmes.

What this study adds:

- Provides the first comprehensive mapping of peer and near-peer involvement in simulation-based education (SBE), detailing the roles, training, supervision and impact of student faculty across diverse undergraduate healthcare settings.
- Highlights significant variability in the preparation and support of student simulation faculty, underscoring the need for clearer standards and governance to ensure consistency, safety and educational quality.
- Demonstrates positive outcomes for both learners and peer educators, supporting theories of cognitive and social congruence while identifying gaps in quality assurance and long-term impact evaluations.
- Identifies key priorities for future research, including best practices for faculty development and sustainable implementation models supported by cost-effectiveness data.

Introduction

Simulation-based education (SBE) is embedded in most modern undergraduate health professions curricula, offering a safe and effective environment to develop both technical and non-technical skills [1]. However, delivering high-quality simulation at scale is resource-intensive, particularly in the context of increasing student numbers [2]. One potential solution is the integration of students into simulation delivery within Faculty roles, which aims to expand teaching capacity while maintaining educational quality.

Peer and near-peer assisted teaching is an established educational approach which may offer unique pedagogical benefits, distinct from those conferred by professional educators [3,4]. As peer and near-peer tutors have close psychological proximity to learners, as well as their own recent experiences of learning, they are often better equipped to understand and empathize with learners' challenges and more readily able to identify gaps in learners' understanding [5–7]. As a result, they can often bridge the gap between junior learners and experienced teachers, helping to scaffold learners' development as they progress towards mastery [8].

Within health professions education, the advantages of peer and near-peer teaching are commonly reported in areas such as anatomy, procedural skills training and clinical communication [4,9,10]. However, it is not currently clear to what extent these benefits might translate into SBE with respect to learners, peer- and near-peer tutors and Institutions. While Viggers et al. provide a useful overview of their experience integrating student educators within their simulation Faculty at the Copenhagen Centre for Simulation [11], beyond this example, it is not known what Faculty roles peers- and near-peers undertake to augment delivery of SBE, what training they receive to fulfil these roles and

what processes or tools are used to assess competency as simulation educators in this context.

Crucially, we feel peer and near-peer Faculty within SBE differ from other forms of peer-assisted learning due to the range of skills required throughout the various phases of SBE activities, including scenario design, delivery and debriefing. In line with the Association for Simulated Practice in Healthcare (ASPiH) standards, we believe that to fulfil these roles effectively, students need specific training, supervision and governance – and that they cannot automatically gain the knowledge and skills needed to run SBE simply from having experience of being participants in simulation themselves [12].

This scoping review therefore aims to map the current terrain of peer and near-peer Faculty involvement within SBE, identifying gaps in our current knowledge and future research opportunities around the roles undertaken by peer and near-peers in SBE. At present, our lack of understanding of this broader picture limits the practical development of this valuable resource, particularly pertinent as requests for SBE activities expand alongside the global increase in undergraduate healthcare student numbers [2].

Rationale for scoping review

Scoping reviews aim to map out the depth and breadth of the topics of interest, particularly when investigating areas of rapid sociological or technological change [13]. The topic of interest in this case refers to peer and near-peer Faculty within healthcare simulation and this scoping review aims to achieve a more in-depth understanding of how these roles can be utilized and developed. To do this, we will use a recognized methodological framework to review the literature and summarize both the current landscape pertaining to peers and near-peers undertaking Faculty roles in health professions SBE and identify any potential

gaps in the literature, bringing to attention areas that require future, more detailed investigation.

Research questions

Our research questions for this scoping review were as follows:

1. What roles are peer and near-peer-Faculty performing and supporting within SBE in undergraduate health professions education?
2. What is the content and schedule of training provided for peer and near-peer Faculty?
3. What methods, tools or approaches are used to evaluate the benefits, effectiveness or challenges of peer and near-peer Faculty within SBE with respect to (a) learners, (b) Institutions and (c) peer/near-peer Faculty themselves?
4. What methods are used to assess competence or provide feedback, for different roles undertaken by peer and near-peer Faculty within SBE?

Methods

Protocol and registration

A scoping review was conducted according to Arksey and O'Malley's six-stage framework for scoping reviews [14]. The review protocol has previously been published [15]. Our findings are presented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [16].

Eligibility criteria

To identify relevant literature for inclusion, eligibility criteria were applied as per the population, concept and context framework as well as the types of evidence and language [17].

Population, concept and context

Studies were selected based on those relating to peer or near-peer faculty within undergraduate healthcare education simulation. Simulation activity was defined as per the Healthcare Simulation Dictionary as 'the entire set of actions and events from initiation to termination of an individual simulation event; in the learning setting, this is often considered to begin with the briefing (pre-briefing) and end with the debriefing' [18]. As a result, we did not include studies of peer or near-peer faculty teaching clinical skills (for example, venous cannulation), as these did not typically involve a debrief and because this type of peer teaching has already been the subject of previous systematic reviews [4,9,10].

There were no limitations on the type of healthcare programme or types of simulation. Undergraduate healthcare education was defined as any pre-licensure healthcare programme including medical, nursing, dental or allied health professions students.

In this review, we defined 'peer' as someone of the same academic status in terms of year and discipline (e.g. medicine or physiotherapy) and 'near-peer' as those from the same background but one or two academic years apart [3]. Those from different disciplines, in the case

of interdisciplinary programmes, but who are from the same or similar academic levels will also be referred to as 'near-peer' [19]. As per our protocol, we also included within our definition of 'near-peer' those within two years of certification/graduation, such as newly qualified doctors being faculty for senior medical students [15]. We purposefully refer to peer and near-peer 'faculty' to acknowledge that they are undertaking a formal, designated role as simulation practitioners. These may include technical personnel, simulated participants and educators as detailed in the ASPIH standards [12].

Types of evidence

There was no restriction regarding the quality of the study since the aim of the scoping review was to understand the contexts and mechanisms by which peer and near-peer Faculty were trained, utilized and assessed. Our scoping review included any empirical primary research studies or other published academic work, both quantitative or qualitative research study designs or descriptive articles in peer-reviewed journals. This review included experimental and non-experimental designs describing peer-faculty use within undergraduate healthcare education. Review articles were excluded as primary evidence, although their reference list was checked for any relevant primary studies which would fit the inclusion criteria, and these were charted within the scoping review.

Context

Articles were deemed eligible for inclusion if they explored any aspect of peer and near-peer Faculty involvement in undergraduate healthcare programme simulations.

Language

This review only included articles available in English translations.

Search strategy and study selection

The search strategy was developed along with a research librarian and used Medical Subject Headings (MeSH) and keywords relating to simulation and peer or near-peer faculty within the titles, abstracts and index terms (see Supplementary Material for full description). A reference list search of review articles was carried out to identify any further studies not detected during the primary search [20].

Eight databases were searched: PubMed, PsychINFO, Embase, Scopus, Web of Science, CINAHL, ERIC and Google Scholar.

Identified citations were imported into the reference management software Rayyan (<https://www.rayyan.ai>). Any duplicates were removed. Titles and abstracts were screened by a first reviewer (ARM) against the inclusion and exclusion criteria. Following this stage, these selected publications were screened by full text by two researchers for inclusion, one consistent researcher (ARM) plus one other researcher (CB or RF). The researchers were blinded to each other's decisions. Any exclusion reason was recorded. Any disagreement on article inclusion or exclusion, as indicated by the 'conflict' list from Rayyan, was resolved by discussion

in the presence of a third reviewer. Any papers inaccessible were made available once corresponding authors were contacted through institutional access policies.

Charting the data

A standardized data extraction template was created, focusing on variables pertaining to the research questions including article data, variables relating to learners and faculty (both peer/near-peer faculty and other staff), simulation activities, peer faculty training and supervision and benefits and challenges associated with peer and near-peer faculty involvement (see Supplementary Material).

Collating, summarizing and reporting results

After data extraction and charting, the findings were synthesized to address the four key research questions. The roles of peer and near-peer faculty were analysed and presented both quantitatively and qualitatively through tables and narrative descriptions. A narrative synthesis was conducted to explore aspects of initial and ongoing training.

The methods used to assess the impact of peer and near-peer faculty were examined in relation to learners, Institutions and the peer/near-peer faculty themselves. A thematic approach was applied to summarize these evaluations across different SBE contexts.

Lastly, the available literature on ongoing competency assessment was synthesized and presented descriptively. Any gaps identified in the literature are highlighted as areas for future.

Consultation

Knowledge users were engaged throughout the review process including a research librarian, a medical student with no prior formal simulation training (who was also a member of the core research team), a designer of a peer-faculty programme and a member of a student faculty programme. The research librarian and medical student were involved in the overall research strategy, protocol development as well as conducting the review. The medical student, programme designer and member of the student faculty programme were invited to comment on the final results, which informed this final manuscript.

Results

Study demographics

All 38 included studies were published between 2005 and 2024, with the majority undertaken in the USA [21–33], Europe [34–48] and Australia [49–56], with the remainder in Canada [57], Singapore [58,59] and Saudi Arabia [60]. Most were published as full paper within peer-reviewed journals, although four were only available as abstracts or short educational reports [34,48,49,57].

Learners and students within Faculty roles

Student learners were predominately medical [28,29,32,34,35,37,39–42,45,46,48,49,53,55,57,60] and nursing [21,22,24–27,30–33,36,43,44,46,47,50,58–60] students, with only eight studies involving other healthcare disciplines (physiotherapy [23,51,52,54,56], pharmacy [60], dentistry

[60], radiography [46], biomedical [46] and paramedic [38,46]). The number of learners undertaking SBE in the included studies ranged from 3 to 637, while the number of peer- or near-peers in faculty roles ranged from 4 to 194, although this was not clearly stated in five studies [21,36,45,48,57].

Nineteen studies had peers within Faculty roles [21,24,27–30,33,36,38,40,41,43–45,47,50,55,56,60]. In the other 19 studies with near-peers acting as Faculty [22,23,25,26,31,32,34,35,37,42,46,48,49,51,52,54,57–59], most were undergraduate students from the same discipline, with the exception of two studies which included near-peers who were newly graduated doctors [34,35] and three studies which included interprofessional learners as near-peer Faculty [32,46,60].

Peer and near-peer Faculty roles within SBE

Peers and near-peers undertook a range of Faculty roles within simulation, as shown in Table 1. In just over half of the included studies (21/38), students undertook more than one role. Furthermore, in studies where peer-to-peer learning was employed, students in several studies undertook alternating roles as a learner and as Faculty within the same simulation session [43,44,55].

In one study exploring the impact of a 7-week elective placement within a simulation department, students were encouraged to develop skills in scenario writing, delivery and debriefing and then help deliver SBE for both undergraduate and postgraduate students as part of the Faculty – however, there was no further detail of exactly which roles students took on within this team [49].

In studies involving the development, design or planning of simulation, students in all but one went on to deliver part of their self-designed simulation [60]. In some studies, peer and near-peer tutors who were observing or had taken on the role of a simulated patient or technical operations provided verbal feedback to learners following the simulation but in others, peer- or near-peers facilitated a learning conversation following the simulation which encouraged learner self-reflection [28,31–33,35,36,38,40,43,55].

Training of peers and near-peers for roles within SBE

The training provided for students undertaking roles within SBE was variable, as shown in Table 2. Often, the rationale, intended learning outcomes and time required to complete the training were not clearly described, particularly when peers/near-peers undertook multiple roles. Only two studies described designing training for near-peers with reference to ASiPH's standards for Faculty development, while noting that these are not specific for students undertaking these roles [52,56]. Furthermore, studies described training for a role or roles within a specific simulation – none described training for peer- or near-peers to undertake Faculty roles in multiple different simulation sessions across a curriculum.

To support students to write realistic and achievable simulation scenarios, many had didactic teaching on fundamental principles of simulation design and were often provided with additional written resources, such as

Table 1: Peer and near-peer roles within SBE

First author	Peer or near-peer	Role(s) undertaken					
		Writing simulation scenarios and/or designing simulations	Pre-briefing	Simulated Patient (including patient voice if manikin used)	Embedded HCP within scenario	Technical operations	Debriefing/facilitating learning conversation
Aljahany	Peer	Yes	No	No	No	No	No
Antonelou	Near-peer	No	Yes	No	No	Yes	Yes
Babla	Near-peer	Yes	No	Unclear	No	Unclear	Yes
Bergen	Peer	No	No	Yes	No	No	No
Brazil	Near-peer	Yes	Unclear	Unclear	Unclear	Unclear	Unclear
Brown (2017)	Peer	Yes	Yes	Unclear	No	Yes	Yes
Brown (2018)	Near-peer	No	No	No	No	No	Yes
Cash	Near-peer	No	Yes	Yes	No	Yes	Yes
Christiansen	Peer	Yes	Unclear	No	No	Unclear	Yes
Curtis	Peer	No	Unclear	Yes	No	Yes	Yes
Dennis (2020)	Near-peer	No	Unclear	Yes	No	No	Yes
Dennis (2022)	Near-peer	No	No	No	No	Unclear	Yes
Dunn	Peer	No	No	Yes	No	No	No
Dumas	Near-peer	No	No	No	No	Yes	Yes
George (2018)	Peer	No	No	Yes	No	No	No
George (2020)	Near-peer	No	No	Yes	No	No	No
Granger	Near-peer	No	No	Yes	No	No	No
House	Peer	No	No	No	No	Yes	Yes
Jaffrelot	Peer	No	Yes	No	No	No	Yes
Jauregui	Peer	No	No	No	Yes	Yes	Yes
Kayser	Peer	Yes	Yes	No	No	Yes	Yes
Mandrusiak	Near-peer	No	No	Yes	No	No	No
Nestel	Near-peer	No	No	No	No	No	Yes
Nunnink	Peer	Yes	Yes	Yes	Yes	No	Yes
Oldenburg	Peer	Yes	No	No	No	No	No
O'Leary	Near-peer	No	Unclear	No	No	Yes	Yes
Owen	Near-peer	No	No	Yes	No	No	Yes
Paige	Near-peer	No	No	No	No	No	Yes
Pritchard	Peer	No	No	Yes	No	No	No
Rosslund	Peer	Yes	No	Yes	No	No	Yes
Rosler	Peer	No	No	No	No	No	Yes
Svelling	Peer	Yes	Yes	Yes	No	No	Yes
Tengiz	Peer	No	No	Yes	No	No	Yes
Tervajarvi	Near-peer	Yes	No	No	No	No	No
Valler-Jones	Peer	Yes	No	No	No	No	Yes
Yoong (2023a) ¹⁰³⁶²³	Near-peer	No	No	No	No	No	Yes
Yoong (2023b)	Near-peer	No	No	No	No	No	Yes
Young	Near-peer	No	No	No	Yes	Yes	Yes

Table 2 : Training of peer and near-peer Faculty

First author	Role(s) undertaken in SBE	Training for role(s) provided	Main topics covered in training	Modality of training	Total training time	Scheduling of training time (during work hours/ out-of-hours)	Rehearsal or practice in role prior to SBE
Aljahany	Scenario design	Yes	<ul style="list-style-type: none"> How to design and write a simulation scenario, staging needs, types of debriefing 	Face-to-face (lecture and practical workshop)	Unclear	Unclear	N/A – scenarios not carried out
Antonelou	Pre-brief/Debriefing Technical operations	Yes	<ul style="list-style-type: none"> Debriefing skills Role of human factors How to use Laerdal SimMan manikin 	Face-to-face	2 hours	Out-of-hours	Unclear
Babla	Scenario design Debriefing	Yes	<ul style="list-style-type: none"> How to design and write a simulation scenario Main functions of the simulation manikin 	Face-to-face (lecture and site orientation)	Unclear	Unclear	No
Bergen	Simulated patient	No	N/A	N/A	N/A	N/A	N/A
Brazil	Scenario design Technical operations Debriefing	Yes	<ul style="list-style-type: none"> How to design and write a simulation scenario How to create moulage How to undertake role of simulated patient 	Face-to-face including working with experienced Faculty	Unclear but on elective for 7 weeks	During work hours	Unclear
Brown (2017)	Scenario design Technical operations Pre-briefing/ Debriefing	Unclear – state had rehearsal of scenarios supported by Faculty but no other specific training detailed	<ul style="list-style-type: none"> How to use technology employed within scenarios (not further specified) 	Face-to-face	Unclear	Unclear	Yes
Brown (2018)	Debriefing	Unclear	Provided resources, including learning outcomes and suggested questions for debrief	Unclear	Unclear	Unclear	Unclear
Cash	Simulated patient Technical operations Pre-brief/Debriefing	Yes	<ul style="list-style-type: none"> Teaching methodologies 	Accredited e-learning course	6-week course (total hours not specified)	Unclear	Yes
Christiansen	Scenario design Debriefing	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Curtis	Simulated patient Technical operations Debriefing	Yes	<ul style="list-style-type: none"> ow simulation would run Demonstration of how to use technology (hand-held devices) to drive sim 	Video	Unclear	Unclear	Watched video of similar scenario
Dennis (2020)	Simulated patient Debriefing	Yes	<ul style="list-style-type: none"> Principles of adult education SBE frameworks Debriefing 	E-learning module	Unclear	Unclear	Yes

Table 2. Continued

First author	Role(s) undertaken in SBE	Training for role(s) provided	Main topics covered in training	Modality of training	Total training time	Scheduling of training time (during work hours/ out-of-hours)	Rehearsal or practice in role prior to SBE
Dennis (2022)	Debriefing	Yes	<ul style="list-style-type: none"> Fundamentals of PAL/SBE Learning outcomes and expectations for student performance for each scenario Debriefing best practices with video examples 	Face-to-face with additional video resources	3-days (Group 1 tutors) 6 days (Group 2 tutors)	Work hours	Yes Group 2 tutors also observed Group 1 tutors in practice
Dunn	Simulated patient	Yes	<ul style="list-style-type: none"> Realistic portrayal of symptoms 	Face-to-face	45 minutes	Work hours	Yes
Dumas	Technical operations Debriefing	Yes	<ul style="list-style-type: none"> How to use sim equipment Debriefing process 	Face-to-face	5 hours	Work hours	Yes
George (2018)	Simulated patient	Unclear	<ul style="list-style-type: none"> Scenario content and role 	Unclear	Unclear	Unclear	Unclear
George (2020)	Simulated patient	Yes	<ul style="list-style-type: none"> Scenario content and role Assessment techniques How to give effective feedback 	Face-to-face Podcast	Unclear	Unclear	Unclear
Granger	Simulated patient	Yes	<ul style="list-style-type: none"> Principles of simulation Training for role portrayal as simulated patient and for providing feedback 	E-learning modules including videos Synchronous live webinar for discussion	2 hours	Work hours	Yes
House	Technical operations Debriefing	No	<ul style="list-style-type: none"> Provided with objectives, patient outcome summary, outcomes checklist, questions for debriefing and instructions on how to use devices (rhythm generator) for assigned case. 	N/A	N/A	N/A	No
Jaffrelot	Pre-brief/Debriefing	No	N/A	N/A	N/A	N/A	No
Jauregui	Embedded HCP Technical operations Debriefing	No – self-directed learning only	<ul style="list-style-type: none"> Learning outcomes for session. How to use the software during case with example. 	Pre-recorded video	Expected to be <1 hour	Out-of-hours	No
Kayser	Scenario design Technical operations Pre-brief/Debriefing	Yes Also attended generic instructor training course after being near-peer tutor for several months to help become independent facilitator	<ul style="list-style-type: none"> How to facilitate workshops and SBT scenarios. 	Face-to-face	Unclear	Unclear	Unclear
Mandrusiak	Simulated patient	Yes	<ul style="list-style-type: none"> How to portrayal patient symptoms in interview and physical examination How to provide feedback to learners 	Face-to-face coaching	1 hour	Work hours	Yes

Table 2. Continued

First author	Role(s) undertaken in SBE	Training for role(s) provided	Main topics covered in training	Modality of training	Total training time	Scheduling of training time (during work hours/ out-of-hours)	Rehearsal or practice in role prior to SBE
Nestel	Debriefing	Yes	<ul style="list-style-type: none"> Facilitation skills Content, structure and process of the interviewing a simulated patient session. 	Face-to-face workshop	3 hours	Work hours	Yes
Nunnick	Scenario design Pre-brief/Debriefing Embedded HCP Simulated patient	Yes	<ul style="list-style-type: none"> Brief introduction to debriefing using plus-delta model 	Face-to-face	Unclear – had 2 hour session to write scenario, time for debriefing training not quantified	Work hours	Unclear
Oldenburg	Scenario design	Unclear	<ul style="list-style-type: none"> Provided with template for scenario design 	Online	Unclear	Unclear	Yes
O’Leary	Technical operations Debriefing	Yes	Unclear	Unclear	Unclear	Unclear	Yes
Owen	Simulated patient Debriefing	Observation of Faculty members running scenario only	Unclear	Face-to-face	Unclear	Work hours	No
Paige	Debriefing	No	N/A	N/A	N/A	N/A	No
Pritchard	Simulated patient Debriefing	Yes	<ul style="list-style-type: none"> Principles of peer simulation Knowledge and skills needed to successfully portray patient role 	Online e-learning modules and face-to-face	9 hours	Unclear for e-learning 1 hour face-to-face during work hours	Yes
Rossland	Scenario design Simulated patient Debriefing	Yes	<ul style="list-style-type: none"> Communication skills relevant to scenario design Preparation of role card and rehearsal of patient role 	Face-to-face	1 day for scenario design – unclear if rehearsal was in additional time	Work hours	Yes
Rosslar	Debriefing	States ‘attended educational sessions regarding their role’ – no further detail given	Unclear	Unclear	Unclear	Unclear	Unclear
Svellingen	Scenario design Pre-brief/Debriefing Simulated patient	Yes	<ul style="list-style-type: none"> Communication skills and theories of communication Scenario design 	Face-to-face	Unclear	Work hours	Unclear
Tengiz	Simulated patient Debriefing	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear

Table 2. Continued

First author	Role(s) undertaken in SBE	Training for role(s) provided	Main topics covered in training	Modality of training	Total training time	Scheduling of training time (during work hours/ out-of-hours)	Rehearsal or practice in role prior to SBE
Terajarvi	Scenario design	Unclear	Unclear	Unclear	Unclear	Unclear	N/A
Valler-Jones	Scenario design Debriefing	Unclear - states had scheduled time for scenario planning and rehearsal	Unclear	Face-to-face	Unclear	Work hours	Yes
Yoong (2023a) 103623	Debriefing	Yes	<ul style="list-style-type: none"> • How to conduct peer video feedback and verbal feedback using structured peer feedback framework 	Online	2 hours	Unclear	Unclear
Yoong (2023b) quality	Debriefing	Yes	<ul style="list-style-type: none"> • How to conduct peer video feedback and verbal feedback using structured peer feedback framework 	Online	2 hours	Unclear	Unclear
Young	Technical operations Embedded HCP Debriefing	Yes	<ul style="list-style-type: none"> • How to use manikin • Techniques for debriefing including advocacy with inquiry 	Face-to-face	Unclear	Unclear	Unclear

a scenario template and/or intended learning outcomes [30,35,41,43,44,52,56,60]. Where scenario development took place face-to-face, experienced Faculty were usually present to help guide and facilitate the session [35,44,60] and when done online, scenarios were submitted to Faculty for approval prior to piloting [30].

When acting as simulated patients, some students had dedicated training on how to realistically portray relevant signs or symptoms, with or without opportunities for rehearsal with Faculty feedback [24,52,54,56]. This included videos [52] and recorded patient interviews to help students understand patients' lived experiences [56]. In other studies, students were simply provided with an outline of the scenario content and expected role [26,27], while in some, no training or preparation specifically for this role was described [21,23,37,50,55]. This was more common when peers/near-peers were taking on more than one role within the simulation.

To be able to use technologies within a simulation, students were often provided with a written [28], video [29,50] or hands-on introduction to the technology (e.g. manikin) [34,48], with some undertaking additional observation or rehearsal of the role as preparation prior to the simulation [25,36,57].

Training to help prepare students as facilitators ranged from peer-Faculty undertaking a formal instructor training course [37,41] to those who were simply provided with scenario information and intended learning outcomes with the expectation they undertake self-directed preparation in their own time [22,28,29]. Others had one or more face-to-face training sessions which included explicit instruction on communication skills and debriefing techniques [25,34,42,44,51,56]. Many had access to specific preparatory materials (such as e-learning modules or video tutorials) although the content and time needed to complete them (where stated) was highly variable [23,50,51,58,59]. Structured feedback or debriefing using a pre-defined template was common, particularly with peer-to-peer facilitators [28,31-33,35,36,38,40,43,55]. However, it was often unclear if students had any dedicated practice with Faculty feedback prior to undertaking the simulation.

Supervision of peers- and near-peers within Faculty roles

When undertaking faculty roles within simulation, the supervision of peers and near-peers was also variable. In some studies, students were unsupervised [37], while in others, Faculty observed remotely [36], were present only to answer questions from student learners if required [28,43,57] or to troubleshoot technical issues with equipment [50]. In several studies, experienced Faculty were present throughout the simulation as observers [31,33,38,44] or as embedded healthcare professionals [35].

In two studies, experienced near-peer Faculty were involved in training and mentoring new students joining the faculty [41,57], while in one study, near-peer tutors were provided with daily performance feedback from supervising staff in addition to dedicated 1:1 mentorship with senior simulation Faculty [51]. Furthermore, two papers describing

the same simulation event used a previously validated framework to provide feedback on debriefing ability to near-peer tutors [58,59]. However, in the majority of studies, there appeared to be no clear mechanism for providing feedback to peer or near-peer tutors.

Quality assurance and governance of student Faculty

Only one study described formal assessment of competence, with trained observers using the Objective Structured Assessment of Debriefing to evaluate peer-Faculty following interprofessional simulation [32]. However, the main aim of this study was to compare the efficacy of two feedback tools rather than as a way to support and develop a peers/near-peers in Faculty roles.

Reported benefits and challenges for learners

Ten studies described improvements in learners' knowledge, skill and/or confidence following simulation through some form of pre and post-test [21,25,27,28,34,38,40,43,48,56,58]. Six studies directly compared outcomes from peer- and Faculty-led simulation. One study found students achieved higher clinical performance checklist scores when simulation was led by a senior student compared to staff Faculty [25], while in another, there was higher student-reported motivation and satisfaction with peer-led simulation compared to Faculty-led [23]. In the other four studies, there was no significant difference found across multiple domains (including clinical knowledge, non-technical skills, self-efficacy and reflection levels) when roles were undertaken by peer- or near-peer tutors compared to Faculty [21,28,38,40].

However, multiple studies used qualitative evaluation of surveys and/or focus groups and found that learners often perceived the environment in peer-led simulations as less intimidating, so they felt more comfortable making mistakes and asking questions [29,33,41,55]. Learners also viewed peers as relatable, credible and empathetic educators who understood their learning needs [52]. Perhaps for this reason, learners in several studies rated experiences of peer- and near-peer-led sessions as more engaging and enjoyable [21,22,37,50].

However, in two studies learners admitted they felt more anxious about being judged by their peers [47,52] and some felt their learning may be compromised by near-peers who were inexperienced [45] or provided feedback that was overly lenient compared to experienced Faculty [51,52].

Reported benefits and challenges for peer and near-peer Faculty

Peer- and near-peer Faculty self-reported improvements in their teaching, mentoring and leadership skills, while noting that teaching in simulation also helped to consolidate their own knowledge [22,23,26,27,33,36,37,41,44,51,52,54,58,59]. In several studies, participation in Faculty roles within SBE was felt to enhance their professional development and in some cases, have a positive impact on their own clinical practice [21,22,42,49]. For example, in one study, nursing students noted direct transfer of leadership and communication skills from simulation to the clinical setting, reporting

they felt less anxious about speaking up in team meetings or engaging in difficult communications after facilitating simulations [44]. In addition, peer-faculty reflected that both writing patient scripts and taking on the role of a simulated patient increased empathy through better understanding of the patients' perspective and provided valuable insights which they felt would improve their future practice [43,54–56].

Peer-faculty were cognizant of providing a high-quality educational experience for their peers and generally found taking on this responsibility rewarding and enjoyable. This type of teaching experience was also viewed as valuable to their future careers and helped foster interest in medical education more broadly [34,49,52]. Two studies mentioned benefits-in-kind, such as course credit [25] or provision of a gift card [22]. In one study, students who undertook the role of simulated patient were able to count this towards their clinical practice hours [27] but in all others, peers/near-peers volunteered their time without specific benefit or remuneration.

However, some did share their anxiety about having the necessary skills and knowledge to undertake their role [47,58] although confidence in their abilities as peer- or near-peer tutors was found to improve with further experience over time [52]. Challenges arose when learners deviated significantly from what was anticipated within the scenario [55], when mentoring high-performing students [51] and navigating social dynamics when trying to provide constructive feedback without appearing judgemental, particularly to peers [30,35,47,51,52].

Reported benefits and challenges to Institutions

The perceived advantages of peer/near-peer Faculty at Institution-level were anecdotal, with few providing objective evidence. Several studies did estimate cost savings, which were usually based on either cost of Faculty time or expenditure for paid actors portraying simulated patients [24,31,38,51,52,56]. For example, one study projected that inclusion of near-peer Faculty, which allowed staff Faculty to supervise multiple simulation rooms simultaneously, equated to saving \$2772 USD/semester (or \$222,220 USD/year) based on Faculty supervising multiple rooms with student Faculty using 2014–2015 salary pay scales [25]. In three studies, experienced peer/near-peer Faculty were involved in training and mentoring new students joining the Faculty, which was felt to help promote programmatic sustainability [57].

One study highlighted that peer involvement allowed better utilization of their simulation facilities [37], although several others noted challenges around peer-tutor availability and ensuring adequate time and resources for training and supervision [31,35,52,55].

Discussion

Peer and near-peer tutoring in health professions education is grounded in several interrelated theories, which emphasize the value of learning in collaborative, socially interactive environments where knowledge is co-constructed [5,7,8]. This is particularly relevant in

simulation, where the creation of a psychologically safe environment is paramount to success [61]. As near-peer tutors share recent experiences with students who are learning, they are well placed to understand their learning needs and can often communicate intended learning outcomes in ways which are accessible and relatable [7]. This scoping review evidences these theories of social and cognitive congruence in practice, demonstrating that peer and near-peer student Faculty are able to design simulation scenarios which match perceived learning needs, present material at an appropriate level of cognitive challenge during scenarios and can help foster an interactive, less intimidating learning environment.

Our review aligns with findings from systematic reviews of near-peer tutors in other settings, which have shown that this approach can be as effective as faculty-led instruction, improving both student engagement and outcomes [4,7,9,10]. Peer tutors also benefit through improvements in their own clinical knowledge and development of teaching and communication skills – although these are frequently only reported using subjective self-assessment metrics [62]. In addition, participation in simulation as faculty may provide transformative learning, helping to develop leadership skills necessary in any healthcare career [23,42,44,48,49,52]. However, as Lising et al. caution, if student-led experiences are being used to help support educational service provision, explicit attention must be paid to the specific development needs of student faculty, with the degree of autonomy adjusted to suit their learning goals, assessment requirements and stage of development [63].

Despite growing interest in peer and near-peer teaching within SBE, there remains limited evidence regarding the optimal design and delivery of training for student faculty. Key uncertainties include the ideal content, timing, frequency and instructional methods, as well as how prior teaching or clinical experience may influence learning trajectories. Moreover, robust methods for assessing competency and delivering formative feedback are underdeveloped, with previously validated metrics (such as the Harvard DASH) rarely used in this context. Further work is needed to explore alternatives such as adopting an Entrustable Professional Activities framework [64].

The ASPIH has published standards which emphasize the need for all simulation Faculty (including those undertaking technical operations and roles as simulated patients) to be appropriately trained, as well as recognizing the importance of supporting continuous professional development, through mentorship, regular educational opportunities and appraisal/performance reviews [12].

The findings of this review underscore considerable variability in the training and development approaches employed for peer and near-peer Faculty within undergraduate SBE. To ensure students are adequately prepared to assume Faculty responsibilities, it is imperative that they receive structured and progressive support throughout their development as simulation educators. Faculty development programmes should be informed by established guidelines – such as Health Education England's national simulation Faculty development toolkit – and

grounded in robust theoretical models, including Steinert's conceptual framework for faculty development [65,66]. These resources provide a foundation for ensuring that student Faculty are equipped to fulfil their roles competently and safely.

Moreover, training initiatives must be responsive to the specific learning needs associated with peer and near-peer Faculty roles within local educational contexts. Consideration should also be given to longitudinal strategies designed to support and engage student Faculty, particularly given the rotational nature of many undergraduate and early postgraduate health professions training. Furthermore, the developmental trajectories of specific pedagogical competencies – such as debriefing – remain insufficiently documented within the literature. The application of theoretical models, such as the framework proposed by Cheng et al., offers a valuable lens through which these skill acquisition processes may be better understood, thereby enabling more targeted and responsive training interventions [67]. In addition, qualitative inquiry into the formation of educator identity among student Faculty holds promise for informing the design of mentorship and support mechanisms that promote meaningful integration into the wider educational community.

This review highlights a significant gap in the literature regarding the effective implementation and long-term sustainability of peer and near-peer faculty models in simulation. There is a need for research into approaches to recruitment, training and governance across diverse curricular settings, as well as how best to integrate continuous processes for feedback and performance review. Research which examines transferability of successful models by identifying enablers and barriers to adoption, as well as scalability, is also needed. Lastly, cost-effectiveness should be considered alongside educational value, as in our own experience, this can be critical to secure institutional buy-in for student-led simulation faculty programmes [68].

Limitations

We acknowledge that there may be articles available in languages other than English which have not been included in this review. Publication bias may also impact Institutions from sharing experiences where integration of student Faculty within SBE have not been successful. In addition, the heterogeneity of the included studies in terms of research questions, methods and context meant that we looked to draw out broad themes within the results and, as this was a scoping review, we did not look to critically appraise the quality of the evidence presented within these studies.

Conclusion

This scoping review highlights the growing role and potential of peer and near-peer Faculty within undergraduate SBE, underpinned by educational theories that emphasize collaborative, socially situated learning. The evidence suggests that student faculty can effectively contribute to scenario design, facilitation and debriefing, often enhancing psychological safety and learner engagement. However, the review also reveals significant

variability in training, supervision and governance practices, underscoring the need for structured development pathways aligned with existing standards.

Despite promising outcomes, the current literature is limited by a reliance on self-reported benefits and a lack of robust evaluation frameworks. To fully realize the value of peer and near-peer faculty in SBE, future research must address key gaps in understanding: how best to train and assess student educators, whether skills acquired in simulation translate to clinical practice and how to implement and sustain these models across diverse educational contexts. Addressing these priorities will be essential to ensure that peer and near-peer Faculty are not only effective contributors to simulation education but are also supported in their development as future healthcare educators.

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Supplementary material

Supplementary data are available at *Journal of Healthcare Simulation* online.

Declarations

Authors' contributions

CB conceived the initial idea for the study. CB, RF and ARM devised the research protocol. JM and RF developed the Aberdeen student simulation faculty development programme which was the inspiration for this review study. ARM, CB and RF conducted the literature search. RF drafted the initial manuscript and all authors significantly contributed to the writing and editing of the final submitted manuscript.

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Competing interests

There are no conflicts of interest to report.

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