Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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LITERATURE REVIEW

EDUCATION

A18 BARRIERS AND FACILITATORS TO THE USE OF HEALTHCARE SIMULATION TO SUPPORT THE PROFESSIONAL DEVELOPMENT OF HEALTHCARE PROFESSIONALS: A SYSTEMATIC REVIEW OF QUALITATIVE RESEARCH.

Caroline Richardson[1,2,3], Caoimhe Madden[2,4], Dara Byrne[2,4], Sinead Lydon[2,4], Paul O'Connor[2,4]; *[1]Letterkenny University Hospital, Letterkenny, Ireland[2]University of Galway, Galway, Ireland[3]Irish College of General Practitioners, Dublin, Ireland[4]Irish Centre for Applied Patient Safety and Simulation, University of Galway, Galway, Ireland*

Correspondence: Caroline.richardson@nuigalway.ie

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Background and aim: The effectiveness of simulation-based education (SBE) in improving healthcare education among practising healthcare professionals (HCPs) is well recognized [1–3]. However, there is limited research available that explores the facilitators and barriers to the use of these activities amongst this population. The aim of this study was to determine those barriers and facilitators that exist to the use of healthcare simulation amongst practising HCPs through the systematic review of existing qualitative literature.

Methods: Searches were performed using Medline and CINAHL from February to May 2022 with an updated search performed in June 2022. Reference list searches of included studies were also conducted. English-language, peer-reviewed studies that used qualitative methodology to examine barriers and/or facilitators to the use of SBE activities amongst HCPs practising in a hospital setting were included. Data were extracted and a quality appraisal tool was applied by the primary author, with 30% of included studies independently extracted and appraised by a second author to examine the agreement. Barriers and facilitators were coded inductively using thematic analysis.

Results: Thirteen studies were included out of a total of 2109 screened. Four main themes related to facilitators and barriers were identified: (1) management and leadership; (2) resources; (3) perceived impact and (4) learning experience (see Table 1-A18). Amongst studies, positive learning experience was a commonly identified facilitator (n = 10), while leadership and management were a frequently cited barrier (n = 13).

Conclusion: This study identified common barriers and facilitators to the use of SBE activities. By anticipating and addressing these adequately, the use and uptake of SBE activities amongst practising HCPs can be further enhanced.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

Table 1-A18: Thematic analysis of facilitators and barriers to the use and uptake of SBE activities

Themes	Facilitator codes	No. of studies, empirical sources	Barrier codes	No. of studies, empirical sources
(1) Management and leadership	-Responsive/ supportive leadership -Effective scheduling -Dealing appropriately with difficult environment -Visibility of managerial personnel -Simulation as mandatory assessment and training tool -Collaboration with other centres -Common vision -Good communication	*N* = 7 (64.6%)	-Lack of responsive leadership -Lack of time/poor scheduling -Staff shortages -Perceptions of hierarchy -Lack of interprofessional involvement -Poor work culture -Competing vision -Poor communication	*N* = 13 (100%)
(2) Resources	-High standard equipment -Engaging scenarios -Familiarity with equipment/environment -Appropriate personnel -Adequate preparation -Advanced technology -High degree of realism	*N* = 8 (72.7%)	-Poor realism -Financial restraints -Lack of equipment/facilities -Limited technology -Lack of best practice standards -Lack of appropriate personnel (e.g., trainers, SP, limited learners) -Unfamiliar equipment or facilities	*N* = 10 (76.9%)
(3) Perceived impact	-Perceived quality and safety benefits -Improved culture -Multidisciplinary collaboration -Core job responsibility/role accountability -Valued experience -Improved teaching skills and techniques -Demonstrable cost-benefit	*N* = 7 (64.6%)	-Participant stress/anxiety/discomfort -Interprofessional conflict - Ineffective use of effort or time -Benefits of simulation unclear	*N* = 6 (46.2%)
(4) Learning experience	-Consistency in delivery -Material aligned to staff interest/needs -Trainer expertise -High-impact learning -Safe and positive environment -Individualized feedback	*N* = 10 (90.9%)	-Inconsistency in programme delivery -Trainers seen as outsiders -Limited engagement -Curriculum not adapted to needs -Purpose not clear	*N* = 7 (53.8%)

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EDUCATION

A19 IDENTIFICATION OF CLINICAL REASONING MODELS COMMONLY USED IN SIMULATION-BASED EDUCATION

Emad Almomani[1], Jacqueline Sullivan[1], Natalie Pattison[2,3,4], Guillaume Alinier[1,2,5,6]; *[1]Hamad Medical Corporation, Doha, Qatar[2]University of Hertfordshire, Hatfield, United Kingdom[3]Florence Nightingale Foundation Clinical, London, United Kingdom[4]North Herts NHS Trust, Stevenage, United Kingdom[5]Weill Cornell Medicine–Qatar, Doha, Qatar[6]Northumbria University, Newcastle upon Tyne, United Kingdom*

Correspondence: ealmomani101@gmail.com

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Background and aim: Simulation can immerse learners in scenarios that mimic clinical situations, simultaneously mitigating safety risks and increasing standardization in healthcare education [1]. Through simulation, learners can get the chance to develop clinical reasoning with focused learning opportunities [2]. Clinical reasoning is multidimensional in nature, and underdeveloped clinical reasoning skills and the risk of cognitive overload can potentially threaten patient safety and delay care, so it is important to systematize, optimize and structure clinical reasoning for simulation-based education [3]. That can be achieved through using valid clinical reasoning models but with careful consideration to the contributing and influencing factors of case complexity, staff seniority, competence, scope of practice, specialty and subspecialty.

Methods: A scoping review was undertaken to answer the questions: what are the best available valid and reliable clinical reasoning models for simulation-based education? We searched Medline, Scopus, Education Research Complete and Google Scholar to identify relevant recent primary research conducted on this topic from 2000 onwards. The search included MeSH topics of 'Clinical reasoning', 'Simulation-based education' and 'Clinical Reasoning models'. The inclusion criteria were primary studies describing the clinical reasoning models developed for simulation-based courses. Two independent researchers agreed on the inclusion of the identified articles for full-text review. This review followed the review guidelines of Joanne Briggs Institute.

Results: Five valid and reliable models to structure the clinical reasoning process while attending simulation-based training were identified and are reported in Table 1-19. However, their validity and reliability were tested on working and undergraduate student nurses, and there was no consideration for different seniority and competence levels, and applicability to other healthcare professions.

Conclusion: There is an adequate number of clinical reasoning models to be used while taking part in simulation-based training; however, there is a significant basis to test the reliability and validity of these models against different

Table 1-A19: Identified clinical reasoning models based on the scoping review

Model	Objective	Methodology/description	Findings
TANNER's Model (Tanner 2006)	To describe the clinical judgment of nurses, and to guide educators to help undergraduate students diagnose breakdowns, identify areas for improvement, and consider learning experiences that focus attention on those areas.	Literature synthesis on clinical judgment and conclusions derived from the literature.	Nurses enter the care of patients with a fundamental sense of clinical judgment about what is good and right, and a perception for what is high quality care.
DML Model Debriefing for meaningful learning (Dreifuerst, 2011).	To discover the effect of the use of DML on the development of clinical reasoning in undergraduate nursing students.	Exploratory, non-equivalent group quasi-experimental, pre-test/post-test design. Participants were assigned to either the experimental or control group where the DML was compared to customary debriefing using the Health Sciences Reasoning Test (HSRT) before and after the debriefing experience, and the Debriefing Assessment for Simulation in Healthcare–Student Version (DASH–SV)	DML Model positively influenced the undergraduate nursing students' development of clinical reasoning skills, as compared to customary debriefing.
The Outcome-Present State Test (OPT) clinical reasoning model (Pesut and Herman, 1998).	The OPT model is a concurrent, iterative model of clinical reasoning that emphasizes reflective self-monitoring. It requires learners to use all the elements of the nursing process and to build on prior knowledge in an iterative fashion to further hone nursing thinking skills.	The model is designed based on the literature review of the history of nursing process over time. The components of the OPT model include the client-in-context story, keystone issue, cue logic, reflection, framing, testing, decision-making, and judgments. The OPT model focuses on outcomes and encourages backward thinking to move the client from his or her current health status (present state) to the desired (outcome) state. The present state is derived from an analysis and synthesis of relationships between and among nursing and client nursing care needs.	The model can be used to enhance educational practices. It reinforces thinking skills, as learners analyse nursing problems from different aspects based on a high-level thinking process. It also serves as a structure for teaching, for clinical supervision, and for developing middle range theories organized around nursing knowledge taxonomies.