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# Comparing the Effectiveness of Clinical Simulation versus Didactic Methods to Teach Undergraduate Adult Nursing Students to Recognize and Assess the Deteriorating Patient

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## KEYWORDS

class room teaching;  
clinical simulation;  
competence;  
confidence;  
self-efficacy;  
systematic assessment

## Abstract

**Background:** Clinical simulation in undergraduate nursing programs is prevalent. It is unclear if skills taught by simulation are effectively transferred into clinical practice. This study evaluated the effectiveness of clinical simulation compared with classroom teaching in teaching the assessment of the deteriorating patient.

**Methods:** This study used a phase II, single, randomized, controlled trial with single-blinded assessments. Students were randomly assigned to either a control or an experimental group. Participants underwent pre and post intervention Objective Structured Clinical Examination (OSCE) with objective performance criteria. Participants completed self-reported competence and self-efficacy questionnaires both pre- and post-test OSCE and a student satisfaction form.

**Results:** The experimental group displayed a significantly better performance on post intervention OSCE. There was no correlation between self-reported confidence and self-efficacy and OSCE performance. Participants who received clinical simulation teaching were significantly more satisfied with their teaching experience.

**Conclusion:** The study suggests that clinical simulation is a more effective teaching strategy than classroom teaching for the development of the assessment skills of the deteriorating patient.

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Clinical skills are fundamental to good quality and safe health care provision. Clinical skill development comprises

an essential component of health care education. In the United Kingdom, the Nursing Midwifery Council reported concerns over nursing students' clinical competence at the point of registration (Nursing Midwifery Council, 2005);

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consequently, greater emphasis has been placed on clinical skill development in undergraduate nurse education curricula (McCallum, 2007; Ricketts, Merriman, & Stayt, 2012). Traditionally, nurse educators have relied on clinical placements to provide rich, contextual and experiential

learning of clinical skills (Larew, Lessans, Spunt, Foster, & Covington, 2006); however, the use of clinical simulation as an education tool to support practice learning and competency development is becoming increasingly prevalent (Nehring & Lashley, 2009).

Clinical simulation is aligned with experiential learning theory (Kolb, 1984); students have the opportunity to learn and practice clinical skills within a simulated clinical environment, utilizing clinical scenarios, and high-fidelity patient mannequins. Simulation is acclaimed as being an active learning strategy, which is learner centered, where the educator acts as a facilitator of learning (Jefferies, 2005). The literature

reports many benefits of clinical simulation, ranging from increased self-confidence (Gordon & Buckley, 2009; McCaughey & Traynor, 2010), improved problem solving and critical thinking abilities, and better clinical judgment (Wagner, Bear, & Sander, 2009). Interest in simulation is increasing in international undergraduate curricula (Nursing Midwifery Council, 2007; Stayt, 2012). Arguably, clinical simulation as a pedagogical strategy promotes understanding and application of the cognitive and psychomotor skills required for professional function (Alinier, Hunt, & Gordon, 2004), whereby didactic, traditional methods of teaching are unlikely to adequately prepare students for contemporary clinical practice (Tiwari et al., 2005).

Although the benefits of clinical simulation are clear, it is resource intensive, often involving costly equipment and high staff-to-student ratios (Levett-Jones, Lapkin, Hoffman, Arthur, & Roche, 2011; Prion, 2008). Nurse educators have reported that they feel simulation is a powerful learning strategy, but much of the published research is limited and focuses on student's experiences rather than the effectiveness of simulation (Harder, 2009; Stayt, 2012). Although simulation seems to increase student's confidence, problem solving and clinical judgment, it is not explicitly and robustly demonstrated within the existing

evidence base whether these skills are more effectively learned through clinical simulation compared with classroom teaching. Several attempts to evaluate the effectiveness of clinical simulation in the development of clinical skills have been made (Berragan, 2011; McKenna et al., 2011). The results to date are inconclusive and are hampered by small sample sizes, non-homogenous samples, differing constructs and measurement instruments, and a lack of validated measurement tools (McCaughey & Trainer, 2010).

Arguably with such significant investment it is essential that clinical simulation produces effective outcomes—that of clinical competence in clinical practice (Stayt, 2012). Without good evidence, education providers cannot justify the resources required to continue simulation provision. The purpose of this study was to evaluate the effectiveness of clinical simulation compared with classroom teaching.

The National Institute for Health and Clinical Excellence (2007) and the UK Resuscitation Council (2010) highlighted that health care professionals who do not have refined clinical assessment skills may not recognize key signs that a patient is acutely unwell and deteriorating, which may lead to delayed treatment and avoidable fatalities. To prevent suboptimal assessment and management of the acutely unwell patient in hospital, the National Institute for Health and Clinical Excellence (2007) and The National Confidential Enquiry into Patient Outcome and Death (2005) recommended that health care professionals, including undergraduate student nurses, should receive education and training in critical care assessment skills within their educational programs. A key component of this education should include the ability to assess and recognize patients at risk of deterioration and those who have already deteriorated. A systematic approach to assessment is advocated by the National Institute for Health and Clinical Excellence (2007) and the UK Resuscitation Council (2010). The Airway Breathing Circulation Disability Exposure (ABCDE) assessment tool (Table 1) was first introduced in 2002 as part of the Acute Life Threatening Early Recognition and Treatment (ALERT) course (Smith, Osgood, & Crane, 2002). The evidence shows that, as a patient deteriorates, they display common signs that represent failing respiratory, cardiovascular and nervous systems (UK Resuscitation Council, 2010). The assessment tool not only indicates what should be assessed, but emphasizes the order of priority of the assessment and intervention, providing a systematic approach to caring for acutely ill patients and for preventing cardiac arrests. Buykx and colleagues (2011) and Tiwari and co-workers (2005) argue that didactic methods of teaching and assessment of these skills are unlikely to prepare students for clinical practice. This study evaluates and compares whether these skills are learned more effectively in a simulated environment as opposed to the classroom environment.

### Key Points

- Undergraduate nursing students learn more effectively through simulation how to recognise patients at risk of deteriorating or have deteriorated.
- There appears to be no relationship between undergraduate nursing students self reported efficiency and competence compared with actual performance.
- Longitudinal studies investigating retention of learning and application to clinical practice in order to investigate patient safety and care outcomes are required.

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