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Featured Article

# Psychometric Properties of an Objective Structured Clinical Assessment Tool

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**KEYWORDS**
clinical evaluation;
objective structured clinical examinations (OSCEs);
objective structured clinical assessments (OSCAs);
simulation;
rubrics;
nursing education

**Abstract**

**Background:** Inconsistencies in approaches to clinical teaching and evaluation can lead to significant challenges in the absence of reliable, standardized assessment measures. The purpose of our research was to examine the psychometric properties of a rubric to evaluate students in a simulation testing environment.

**Method:** Two raters used an evaluation rubric to score the performance of 33 students taking part in an objective structured clinical assessment (OSCA). Content validity and inter-rater reliability statistics were calculated.

**Results:** The OSCA as a whole demonstrated excellent content validity and acceptable inter-reliability was obtained on the evaluation rubric.

**Conclusions:** Given the right process, structure, and support, our results indicate that the OSCA is a robust and reliable approach to evaluate student clinical performance.

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Evidence suggests that student evaluation in the clinical setting is open to bias and uncertainty (Docherty & Dieckmann, 2015; Tanicala, Scheffer, & Roberts, 2011). Evidence also suggests that simulation can be an effective alternative to traditional clinical placement (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Together, this evidence illustrates the need for rigorous mechanisms for assessing clinical performance in simulated environments. One strategy is the objective structured clinical examination (OSCE). OSCEs are assessments in which the level of difficulty is standardized relative to the stage of

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learning. But, questions remain about the use of summative examination in simulated environments, particularly given the lack of valid and reliable rubrics and the inconsistency of grading. In the current clinical climate, these questions must be addressed.

**Key Points**

- Objective structured clinical examination and objective structured clinical assessment strategies can effectively support simulation-based testing.
- The development of a robust, valid, and reliable rubric for assessing aspects of clinical performance is important in the changing climate of clinical education.
- Lessons learned during this study confirm previous research that faculty need proper and adequate training in assessing students in simulation.

## Background

The clinical environment in undergraduate nurse education has changed. There is increased demand for clinical placements, compounded by faculty shortage and limited, but often higher acuity, patients (Hayden et al., 2014). With these changes, comes a need to review aspects of clinical assessment and evaluation including evaluation within the simulation setting. The Future of Nursing Report (Institute of Medicine, 2011) called for performance-based assessments that facilitate the application of theory in real-world or realistically simulated situations. This call together with the evidence that simulation could potentially replace up to 50% of traditional clinical placement (Hayden et al., 2014) creates a challenge for educators who have been resistant to use summative or high-stakes evaluation in simulated settings (Rutherford-Hemming, Kardong-Edgren, Gore, Ravert, & Rizzolo, 2014). With the restriction of clinical placements and the expansion of simulation, it may not be sustainable for simulation activity to be exempt from summative processes. The solution may lie in robust strategies for objectively measuring student performance in a simulated clinical environment. One such approach is the OSCE, which originated as an assessment tool in medical education (Harden, Stevenson, Downie, & Wilson, 1975), and is now used extensively in undergraduate nursing education in the United Kingdom, Canada, Australia, and elsewhere (Barry, Bradshaw, & Noonan, 2013; Delavar, et al., 2013; Mitchell et al., 2015; Stiller et al., 2015; Traynor & Galanouli, 2015).

The OSCE is a multistation simulation with each station focused on a specific task. An adaptation is the objective structured clinical assessment (OSCA) which has one station with integrated tasks such as communication, medication administration, and client education (Mitchell, Henderson, Groves, Dalton, & Nulty, 2009). The OSCE/As provide valuable strategies to assess fitness to practice, meet standards of the Quality and Safety Education for Nurses Institute, and maintain public protection (Barry et al., 2013; Nulty, Mitchell, Jeffrey, Henderson, & Groves, 2011; Wiles, 2014). Specifically, OSCE/As facilitate the assessment of elements of nursing practice within the cognitive, psychomotor, and affective domains of learning, improving on traditional evaluations which are largely limited to cognitive and psychomotor aspects (Cazzell & Howe, 2012; Cazzell & Rodriguez, 2011; Miller, 2010). The OSCE/As address require students to use critical thinking, clinical reasoning, and judgment in an educator-controlled environment; and this format provides an opportunity for immediate and meaningful feedback (Benner, Sutphen, Leonard, Day, & Schulman, 2009; Rentschler, Eaton, Cappiello, McNally, & McWilliams, 2007). OSCE/As may also enhance the identification of educational gaps and thus contribute both to student learning and curricular improvement (Cant, McKenna, & Cooper, 2013; Walsh, Bailey, Mossey, & Koren, 2010).

Although the evidence supports advantages in OSCE/As as a mechanism for the assessment of performance and behavioral outcomes (Mitchell et al., 2015), their use in nurse education in the United States is not as widespread as in other countries. The U.S. reticence may relate to a tension between the use of the safe student learning space of simulation and its place as a testing zone. In one survey, it was shown that 57% of respondents did not use simulation for high-stakes testing (Rutherford-Hemming et al., 2014). Furthermore, it has been suggested that each OSCE/A examination should be subject to validity and reliability testing before being utilized (Rushforth, 2007). This important requirement is a time-consuming process likely to limit the development of OSCE/As in new academic settings. This is also not necessarily a standard applied to other forms of student clinical evaluation. For example, the practice of one faculty member being solely responsible for clinical evaluation is often unquestioned (Rutherford-Hemming et al., 2014).

Steps have been taken to address concerns. Best practice guidelines for OSCEs have been developed in Australia (Mitchell et al., 2015); pass scores have been calibrated in the United Kingdom (Traynor & Galanouli, 2015); and steps to develop reliable evaluation instruments are emerging in the United States (Stiller et al., 2015). One example, the Creighton Competence Evaluation Instrument, has been rigorously tested and demonstrates strong reliability and validity in simulation (Hayden et al., 2014). The work in the United States is in its infancy, and more data are needed on the relationship of OSCE/A testing to learning outcomes, the impact and requirement of faculty training, and the development and transferability of rubrics between courses. To support and contribute to the