



Medical and Health Professional Education  
Best Evidence Medical Education

## **BEME Spotlight 54**

### **Non-technical skills assessments in undergraduate medical education: A focused BEME systematic review: BEME Guide no. 54**

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#### **Review citation**

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#### **Review website**

<https://bemecollaboration.org/Published+Reviews/BEME+Guide+No+54/>

#### **Keywords**

Undergraduate medical education; non-technical skills; assessment; patient safety; human factors

#### **Headline conclusions**

Tools to assess non-technical skills were often developed locally, without reference to conceptual frameworks. Consequently, the tools were rarely validated, limiting dissemination and replication. There were clear themes in content and broad categories in methods of assessments employed. The quality of this evidence was poor due to lack of theoretical underpinning, with most assessments not part of normal process, but rather produced as a specific outcome measure for a teaching-based study. While the current literature forms a good starting position for educators developing materials, there is a need for future work to address these weaknesses as such tools are required across health education.

#### **Background and context**

Many medical schools have implemented curricula to teach non-technical skills, a personal set of complex social and cognitive skills which are grounded in safety industries in and out of health. Consensus on how to assess these skills is lacking.

#### **Review objectives**

This review aimed to evaluate the evidence regarding the assessment of non-technical skills within undergraduate medical education. Additionally, this review aimed to describe the specific educational tools used, learning outcomes, and the validity, reliability and psychometrics of the instruments.

## Review methodology

**Search Strategy:** A standardized search of seven online databases and relevant education societies was conducted and consensus reached on included studies.

**Inclusion and Exclusion Criteria:** Studies describing assessment methods as either the focus of the study or having non-technical skills assessment as an outcome measure of the research were considered. Studies describing only teaching without an assessment, failed to describe outcomes or described outcomes related to teaching, but not assessment, were excluded.

**Data Extraction:** The data extraction form and quality assessment tool were produced utilizing guidance from Best Evidence Medical Education. The quality assessment tool was composed of items focusing on research methodology quality and reporting quality.

**Data Synthesis:** A descriptive synthesis of all nine included studies was completed, summarizing key findings, with an assessment of quality indicators as listed above.

## Implications for practice

1. Methods available in the assessment of non-technical skills include simulated clinical scenarios, OSCEs, questionnaire, and written assessments.
2. The design of assessment methods should involve consideration of conceptual frameworks and theoretical models.
3. Research presenting non-technical skill assessment should allow for replication through the provision of materials and tools used.

## References

- Hammick M, Dornan T, Steinert Y. 2010. Conducting a best evidence systematic review. Part 1: from idea to data coding. BEME Guide No. 13. Med Teach. 32:3–15.
- Reed D, Price E, Windish D. 2005. Challenges in systematic reviews of educational intervention studies. Ann Intern Med. 142:1080–1089.