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LETTER

From Simulation to Bedside: The Missing Link in Pediatric Training Research [Letter]

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Dear editor

I read with interest the randomised controlled study by Ba et al[1] exploring situational simulation training in pediatric clinical practice. While their findings demonstrate significant improvements in skill-based training and contribute valuable evidence supporting simulation-based education, certain methodological considerations invite further exploration.

This study assessed outcomes immediately following a six-week rotation with no longitudinal assessment of skill retention or transferability to patient care. This represents a critical gap, since simulation aims for sustainable improvements in clinical practice beyond short-term performance. A meta-analysis[2] demonstrated that while simulation-based education encourages initial skill development, the durability of these skills depends heavily on continued reinforcement and opportunities for real-time application. Moreover, further research[3] suggests that simulation effectively teaches human factors and non-technical skills that strengthen preparedness for clinical situations, whilst influencing patient safety outcomes.

Without longitudinal follow-up, it remains unclear whether the reported improvements represent sustainable skill acquisition or transient clinical performance improvements. Without evidence of clinical translation, the educational value and cost-effectiveness of simulation interventions remain uncertain. Consideration of Kirkpatrick's higher-level outcome measures, such as patient safety indicators, systemic error reduction and objective evidence showing diagnostic accuracy and overall clinical performance in real practice, would address this gap.

Another limitation that emerges relates to the reliability and validity of the assessment methodology. The reliance on a single evaluator conducting all the Mini-CEX assessments raises important questions about inter-rater reliability and evaluator bias. Although the authors state that assessors were blinded to group allocation, maintaining true blinding could be challenging in simulation-based contexts where intervention differences are evident to assessors.

Additionally, the study lacks discussion of how the Mini-CEX was adapted for the simulated pediatric scenario. The Mini-CEX, while widely acknowledged as a validated tool for assessing clinical competence, may require context-specific calibration to ensure appropriate sensitivity and specificity for targeted educational contexts. The categorization of ratings into three broad categories may mask performance nuances, reducing the tool's sensitivity to detect clinically meaningful differences between groups. A recent review[4] on simulation training in medical education highlighted heterogeneity in assessment practices and emphasized the importance of using standardized, validated and focused tools to accurately measure intended competencies.

This concern is reinforced by a study[5] evaluating the effect of comprehensive rater training for multiple evaluators on Mini-CEX scores. The findings showed that inter-rater reliability remained modest, despite structured training, with little improvement in scoring accuracy. This highlights the intrinsic challenges of using the Mini-CEX as a sole assessment tool. To improve methodological rigor and strengthen the credibility of the reported findings, further work should consider utilising multiple trained evaluators with a sufficiently adapted Mini-CEX rating scale. However, I acknowledge that this could be resource intensive.

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Notwithstanding these methodological limitations, Ba et al provide compelling findings supporting simulation-based training in pediatric education. Future research should integrate longitudinal follow-up and robust, context-specific assessment protocols to determine whether simulation delivers sustained improvements in clinical competence and, ultimately, patient outcomes.

Disclosure

The author reports no conflicts of interest in this communication.

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