ORIGINAL RESEARCH

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ENHANCING MEDICAL STUDENT CONFIDENCE IN PAEDIATRIC EMERGENCY CARE THROUGH SIMULATION-BASED LEARNING

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Introduction: New graduate doctors often feel unprepared for decision making and communication in acute situations [1], and undergraduate medical students have limited exposure to acutely unwell children to develop these skills in a paediatric setting. Simulation-based education (SBE) offers learners a chance to practise these skills in a safe, controlled environment without risking patient safety. By replicating real-life scenarios, SBE enhances both technical and non-technical competencies, including decision-making, teamwork, and communication [2]. This project aimed to assess changes in undergraduate medical students' self-reported confidence before and after participating in a simulation-based teaching session on paediatric emergencies.

Methods: A paediatric simulation-based teaching session was designed and delivered to two groups of six undergraduate medical students on their paediatrics placement between January and March 2025. Prior to the session, students completed a questionnaire rating their confidence on a 1–5 Likert scale in four domains: managing an unwell child, recognising when to escalate care, clinical reasoning, and handover communication. The session began with a briefing, discussion of intended learning outcomes, and introduction to the simulation environment and mannequin. Following this, students participated in three paediatric simulation scenarios in pairs, while their peers observed from a separate room. Each scenario was followed by a structured debrief involving all students. Upon finishing the session, students completed a post-session questionnaire reassessing the same four domains. Additionally, they were asked to rate the perceived usefulness and relevance of the session and provide feedback.

Results: Of the 12 participants, only four (33%) had encountered an acutely unwell child during clinical placement. Students' confidence significantly improved when comparing pre-session and post-session mean self-reported confidence levels across all four domains: managing an unwell child (pre-session 1.7, post-session 3.5, $p<0.001$), recognising when to escalate (pre-session 2.6, post-session 4.0, $p=0.003$), clinical reasoning (pre-session 2.4, post-session 3.7, $p=0.001$), and handover communication (pre-session 2.1, post-session 3.8, $p<0.001$). Students also rated the session as highly useful (mean=5.0) and relevant (mean=5.0) to their medical education.

Discussion: Simulation-based teaching significantly improved medical students' confidence across all assessed domains. These findings highlight the value of simulation as a supplement to clinical experience in undergraduate medical education. By offering a safe environment to practise critical skills, SBE enhances clinical reasoning and helps develop competent, confident future doctors.

Ethics Statement: As the submitting author, I can confirm that all relevant ethical standards of research and dissemination have been met. Additionally, I can confirm that the necessary ethical approval has been obtained, where applicable

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