

## Escape to Learn: The Effectiveness of Escape Rooms for Engagement and Learning Outcomes of Undergraduate Medical Students

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### Abstract

**Introduction:** Educational Escape Rooms (EERs) are a dynamic and developing educational strategy that foster active learning, problem-solving, teamwork and leadership.

**Aims:** The primary aims of this study are to explore the role of EERs in improving students' performance and in facilitating effective knowledge acquisition. Additionally, this study intends to assess how EERs support leadership, and teamwork skills in healthcare students as well as promote engagement, and enhance critical and creative thinking under pressure.

**Methods:** We developed an EER based on neonatal content, simulating leadership and management hurdles commonly encountered in professional practice, while reinforcing academic knowledge covered in traditional teaching sessions.

We adopted a mixed methods study design. A randomised controlled trial was used to compare students' performance on Objective Structured Clinical Examinations (OSCEs) and Multiple-Choice Questions (MCQs) between those who participated in the EER and a control group. Additionally, a post-activity survey was administered to gather feedback on students' learning experiences.

**Results:** A total of 139 students attending their neonatal rotation in the Rotunda Hospital, participated in this study.

OSCE performances showed no significant difference between the cases and controls ( $U=2149$ ;  $p\text{-value}=0.908$ , and minimal effect size;  $r=-0.121$ ). No significant difference in MCQs results ( $t=0.544$ ,  $df=36$ ,  $p\text{-value}=0.59$ ) was detected as well.

Qualitative data showed that the majority of the students agreed that the EER was an effective tool for enhancing their learning and reviewing the topic of neonatology and gathering new information.

Seventy-eight per cent of students felt they learned better in a game format and praised teamwork, and lateral thinking. Ninety-seven per cent would recommend the activity to their peers.

**Discussion:** Although EERs may not directly lead to a measurable difference in student performance on standardised assessment, they show promise with respect to fostering active, team-based learning, and enhancing engagement, teamwork, critical thinking, and practical application of neonatal knowledge among medical students. This study reveals EERs' potential as an effective educational tool for enhancing student engagement and active learning. The results also highlight EERs' role in promoting soft skills training within healthcare education, warranting further exploration into their long-term educational benefits.