

# ESCAPE THE CARDIAC ARREST: A FUN ALTERNATIVE FOR LEARNING ALS RESUSCITATION

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## INTRODUCTION

Knowledge and skills in managing cardiac arrest are essential for all doctors to improve outcomes. Gamified learning, such as escape room (ER) games, has gained popularity for its immersive and engaging approach. We set out to develop an alternative approach to teaching cardiac arrest management to medical students that is effective and enjoyable.

## METHODOLOGY

This is a cross-sectional pre- and post-test study involving 4th-year medical students who were assessed for knowledge, decision making, skills performance, and perception. A gamified cardiac arrest resuscitation, teaching the management of shockable and non-shockable rhythms, was developed following the American Heart Association (AHA) syllabus. Ten multiple-choice questions (MCQ) were used to assess knowledge and decision-making, while chest-compression and manual defibrillation were assessed with Objective Structure Clinical Examination (OSCE). Participants received online, self-directed learning materials for two weeks before the game. In the game, participants were required to solve a series of puzzles and perform multiple resuscitation skills on mannequins to successfully escape the rooms within one hour. This was followed by a debriefing session.

## RESULTS

A total of 46 medical students participated in the study. Post-test scores showed significant improvement in both MCQ (theoretical knowledge pre-test: 6 [5-8], post-test: 10 [9-10];  $p < 0.001$ ; decision-making pre-test: 4 [2.8-6], post-test: 6 [5-7];  $p < 0.001$ ) (Fig.1) and OSCE (chest compression-only CPR pre-test: 7 [6-8], post-test: 8 [8-9];  $p < 0.001$ ; manual defibrillation pre-test: 3 [1-5], post-test: 11 [10-12];  $p < 0.001$ ) (Fig.2). All students (100%) found the ER game enjoyable, educational, improved teamwork, and appropriate for their level.

Table 1: Comparison of scores for pre-test and post-test

Assessment Components	Pre-test	Post-test	P value*
Theoretical knowledge MCQ Median score [IQR]	6 [5-8]	10 [9-10]	<0.001
Decision-making MCQ Median score [IQR]	4 [2.8-6]	6 [5-7]	<0.001
Chest compression-only CPR OSCE Median score [IQR]	7 [6-8]	8 [8-9]	<0.001
Manual Defibrillation OSCE Median score [IQR]	3 [1-5]	11 [10-12]	<0.001

\*Wilcoxon Signed Rank test

Fig.1: MCQ score on theoretical knowledge and decision-making

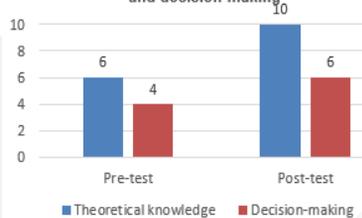
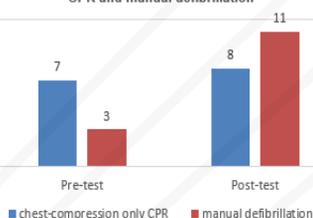


Fig. 2: OSCE score on chest compression-only CPR and manual defibrillation



## DISCUSSION

The ER game provided an engaging and enjoyable learning experience, enhancing both knowledge and practical skills of cardiac arrest resuscitation. Its immersive and interactive nature likely contributed to increased motivation and active participation, reinforcing knowledge and enhancing skill acquisition. This suggests that gamified learning can serve as a fun alternative yet effective to traditional resuscitation training.

## CONCLUSION

The escape room gamification in teaching cardiac arrest management was found to be an effective and enjoyable alternative in improving the knowledge and skills among medical students. This innovative approach can serve as a valuable addition to undergraduate emergency medicine curricula.

**KEYWORDS:** Advanced Life Support, gamification, escape room, medical education

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Scan for Escape Room game here