

Simulation assisted training of B-Lynch surgery for controlling postpartum hemorrhage: Hybrid-Effectiveness-Implementation design

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Background

B-Lynch surgery is effective in controlling postpartum hemorrhage. However, due to the scarcity of cases that require surgery, B-Lynch surgical skill competency is unlikely to be acquired during the Obstetrics and Gynecology (OBGYN) residency training period which raises concern of safety.

Objectives

1) To evaluate the effectiveness of “simulation assisted training of B-Lynch surgical procedure” to improve skills of OBGYN residents, and 2) To evaluate the effectiveness of implementation in university residency training setting.

Methodology

The study was implemented in 2023-2024 in three Ethiopian universities representing young, medium and mature age since establishment. The “MamaBirthie CS” simulator designed by Laerdal Medical was incorporated into 90-minute B-Lynch surgical procedure simulation assisted teaching and trained 134 OBGYN residents. Sixteen pupil were recruited from implementation sites based on their potential role in influencing implementation and were provided with lectures on benefits of simulation assisted training, and engaged in activities such as implementation barrier analysis, co-design of strategies, training and evaluation.

Results

Post training skills evaluation documented that all trainees showed significant improvement in B-Lynch surgical skills [mean difference scores (MDS) 3, 95% Confidence Interval (CI) 2.63-3.37] and [MDS 1.67, CI 1.25-2.09], measured with task-specific and global rating scales, respectively. The change in B-Lynch surgical skills competency was higher for year 1 [n=24, MDS 3.44, CI 2.845-4.03], compared to year 2 [n=18, MDS 2.42, CI 1.70-3.13] and year 3 residents [n=21, MDS 3, CI 2.34-3.66], (F=2.62, p=0.08). Implementation outcome assessed by intervention acceptability, appropriateness & feasibility measure was positive among both implementation decision makers (n=16, mean score 4.52, CI 4.28- 4.75) and OBGYN residents(n=61, mean score 4.53, CI 4.42-4.64)

Conclusion & Recommendation

“Simulation assisted training of B-Lynch surgery” is effective in improving skills of OBGYN residents and is feasible to implement in university settings. We recommend scale-up and believe future initiatives will consider incorporating implementation approaches used in this study.

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