

Evaluation of a Low-Cost Breast Simulator for Oncoplastic Breast Surgery Training: A Workshop-Based Study of Trainees and Consultants

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Background & Aim

Commercial breast simulators are often expensive and inaccessible. We tested a handmade low-cost model for **realism, learning, confidence and satisfaction**.

Methods

- Prospective observational workshop
- April 2026 | PIMS, Islamabad | **n=33**
- 17 junior doctors | 1 registrar | 15 consultants
- 90-min teaching + 90-min hands-on
- Level I/II oncoplastic mammoplasty
- Questionnaire feedback

Simulator Design

- Moulded dough breast mound
- Balloon-latex skin
- Embedded rubber/foam lesions
- Custom stand stabilization

\$14 | 30-45 min | 2-3 sessions



Figure 1. Model

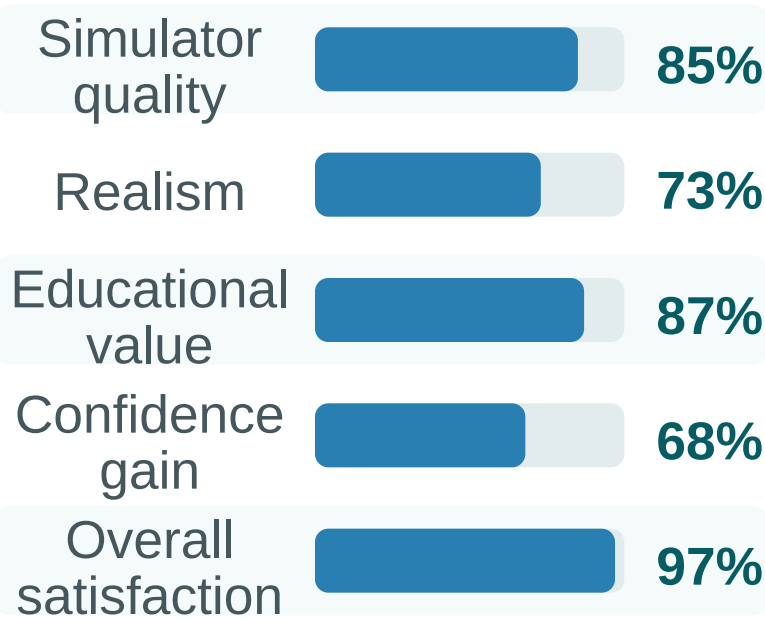


Figure 2. In use

Techniques
Level I & II mammoplasty

Results

Key workshop outcomes (n=33)



Key Findings

85% Simulator quality

73% Realism

87% Understanding

68% Confidence

97% Overall satisfaction

Qualitative Feedback

- Interactive and engaging
- Realistic feel
- Supportive teaching environment
- Suggested improvements: tumour structures, artificial fluid/bleeding, multi-layered skin

Discussion

- Meaningful learning across training levels
- Practical alternative to costly simulators
- Supervised practice + feedback supported learning

Limitations

- Small single-centre sample
- Self-reported outcomes
- No objective skills assessment (OSATS)
- Advanced perforator flap training not replicated

Conclusion

Handmade breast simulators are **affordable and scalable**. They may expand access to oncoplastic simulation training in resource-limited settings.

Selected References

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Ethical approval

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Conflict of interest

None declared