

IS ONLINE VIDEO-BASED EDUCATION AN EFFECTIVE METHOD TO TEACH BASIC SURGICAL SKILLS TO STUDENTS AND SURGICAL TRAINEES? A SYSTEMATIC REVIEW AND META-ANALYSIS

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THEME:

STEM, STEAM, STEMM, STEM+C and STEM+ education

BACKGROUND AND AIMS

Online education has been increasingly utilized over the past decades. The COVID-19 pandemic accelerated the transition of conventional face-to-face curricula to online platforms, with limited evidence for its teaching efficacy. This systematic review aims to assess the effectiveness of online video-based education compared with standard conventional education in teaching basic surgical skills to surgical trainees and students undergoing medical training.

METHODS

We performed a literature search in Embase, Medline, Cochrane CENTRAL and Scopus from inception until February 2022. Studies included were randomised controlled trials (RCTs) and observational studies. We included RCTs only for meta-analysis. The primary outcome was surgical skill proficiency. The secondary outcomes were participant perception, confidence and satisfaction. Two authors independently assessed the search results for eligibility, extracted the data and assessed the risk of bias using the Cochrane Risk of Bias tool 2. Where appropriate, we performed random effects meta-analyses of the pooled study data to calculate a standardised mean difference.

RESULTS

A total of 11 studies met the inclusion criteria totalling 715 participants; 603 were included in qualitative analysis and 380 in meta-analysis. All included studies were assessed as having a low risk of bias. The majority of studies found no significant difference between conventional and video-based education in teaching basic surgical skills, three studies found video-based education was superior and one study found conventional education was superior. There was no statistically significant difference in skill proficiency between the two groups (standardised mean difference of -0.02 (95% CI: -0.34, 0.30); $p=0.90$). Video-based education results in an equivalent improvement in confidence and satisfaction rates. Additional benefits of video-based education include convenience, accessibility and efficiency.

CONCLUSIONS

Basic surgical skills can be taught as effectively through online video-based education as conventional teaching methods. Online education should be utilized as an adjunct to medical curricula beyond the COVID-19 era.

ACKNOWLEDGEMENTS

We would like to acknowledge Rajneesh Kaur^a for statistical advice and guidance.

2022. J. Bobis & C. Preston (Eds.), Proceedings of the 7th International STEM in Education Conference (STEM 2022), University of Sydney, Sydney, Australia, November 23-26. University of Sydney.