5 Impact of Interpolated Questions on Podcast Knowledge Acquisition and Retention: A Double-Blind, Multicenter, Randomized Controlled Trial

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Background: Podcasting is a frequently used media in contemporary medical education, but there is minimal evidence evaluating techniques that enhance knowledge acquisition and retention. Adding embedded questions has been shown to improve learning in online lectures; this has not been studied with podcasting.

Objectives: This study evaluated whether placing interpolated questions into a podcast improved short- and long-term knowledge in postgraduate emergency medicine (EM) trainees.

Methods: This double-blinded, controlled trial randomized postgraduate trainees from six EM programs in the United States to one of two versions of a podcast, produced de novo on the history of hypertension. The versions were identical except that one included five interpolated questions to highlight educational points. The post-podcast assessment consisted of 15 multiple-choice questions, with five questions directly related to the interpolated questions and 10 questions unrelated to them. Assessment occurred twice; once within 48 hours of listening and the second two-three weeks later. The primary outcome was the difference in inter-group mean assessment scores at each time point. We calculated a sample size of 67 participants per arm a priori to identify a significant inter-arm difference.

Results: A total of 137 EM trainees were randomized and completed both assessments (69 in the non-interpolated arm and 68 in the interpolated arm). There were no significant differences in demographic characteristics. Though no significant difference was detected at the first assessment, the second assessment demonstrated significantly higher relative mean scores in the interpolated arm by 10.9% (95% confidence interval [CI], 0.5-21.3%; p = 0.041). For the questions related to the educational points that the interpolated questions addressed, the interpolated arm had significantly greater relative mean knowledge scores at both time points at 16.0% (95% CI, 3.0-29.1%; p = 0.016) and 21.5% (95% CI, 6.0-37.0%; p = 0.007), respectively. There was not a significant intergroup difference for the non-interpolated questions.

Conclusion: Improvement in knowledge acquisition and retention was demonstrated for those whose podcast contained interpolated questions. This difference was driven by the improvement in retention for the material highlighted by the interpolated questions.