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Preliminary Efficacy of a Brief Mindfulness Intervention for Procedural Stress in Medical Intern Simulated Performance: A Randomized Controlled Pilot Trial.

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Abstract

Objectives: Simulation-based mastery learning (SBML) programs have been shown to be beneficial to improve procedural skill acquisition. However, simulated procedure performance can be affected by a host of factors, including stress. This investigation examined the preliminary efficacy of bolstering an established SBML program for medical residents with a brief mindfulness intervention (called a PITSTOP) to reduce procedural stress and improve simulator performance.

Design: The study employed a partially blinded, parallel-group, randomized, repeated-measures intention-to-treat design. Participants were blinded to the primary outcome (simulator performance) and instead were informed of the study's secondary outcome (stress prevention). The SBML faculty instructors and study investigators were blinded to participants' group assignment.

Settings/location: Northwestern Memorial Hospitals of Chicago. Subjects: Twenty-six postgraduate year (PGY) 1 internal medicine residents enrolled in a required SBML central venous catheter (CVC) insertion training from June 2015 to January 2018 participated in the study.

Interventions: SBML consists of a simulated skills pretest, deliberate practice, and a simulated skills post-test (within 1 week of pretest). PGY 1 participants were randomly assigned to the PITSTOP intervention (12-min PITSTOP mindfulness training video) or control group (12-min control video on ways to increase physical activity) before the SBML pretest. Outcome measures: The primary outcome was a comparison of each group's simulator performance during pre- and post-tests. Secondary outcomes were changes in groups' procedural stress during these tests (assessed using self-reported, instructor-rated, and physiologic indicators), and self-reported self-regulation outcomes.

Results: Residents who watched the PITSTOP video before their SBML training made fewer procedural errors relative to controls during their pretest for intrajugular CVC insertion (p = 0.03). PITSTOP participants also had lower heart rate (p = 0.03) and less visible trembling (p = 0.003) relative to controls at the post-test.

Conclusions: This study provides preliminary evidence that a brief, mindfulness intervention may reduce stress during SBML training.

KEYWORDS: anxiety; education; mindfulness; mindfulness-based stress reduction; mind–body; stress
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