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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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