

It Is Feasible and Effective to Deliver Brief Mindfulness Training Recordings to Orthopaedic Trauma Patients: Results From a Pilot RCT

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Purpose: Despite evidence of patient psychosocial factors influencing postoperative outcomes in orthopaedic trauma, effective interventions are limited and inaccessible. Mindfulness-based interventions can decrease physical pain and emotional distress, but are challenging to deliver in a trauma care pathway. One solution is to embed brief mindfulness-based interventions into care pathways. This single-site, 3-arm randomized controlled clinical trial examined the impact of a brief mindfulness-based intervention embedded in the perioperative care of patients undergoing surgery for lower extremity trauma.

Methods: Patients presenting with pelvis or lower extremities were consented in the preoperative holding area and randomized to 1 of 3 interventions: (1) control arm: 7-minute unguided mind-wandering period immediately before and after surgery; (2) preoperative mindfulness arm: 7-minute mindfulness practice immediately before surgery and mind-wandering completed after surgery; and (3) pre-/postoperative mindfulness arm: 7-minute mindfulness practice before and after surgery. All patients were administered the intervention on an i-pad while waiting for surgery. Noise canceling headphones were used. Pain intensity, pain unpleasantness, and anxiety were each assessed immediately before and after each 7-minute intervention period. Patient-Reported Outcomes Measurement Information System (PROMIS) physical function scores were collected at 2- and 6-week postoperative follow-up.

Results: 92 patients were randomized to the 3 treatment arms: 31 control arm, 30 preoperative arm, 31 pre-postoperative arm. Repeated measures analysis of variance indicated that preoperative mindfulness significantly decreased anxiety ($P = 0.02$, $\Delta = -38\%$), but pain intensity ($P = 0.14$, $\Delta = -23\%$) and pain unpleasantness ($P = 0.23$, $\Delta = -28\%$) changes were nonsignificant. After surgery, mindfulness significantly decreased pain intensity ($P = 0.03$, $\Delta = -20\%$) and pain unpleasantness ($P = 0.02$, $\Delta = -21\%$). Hospital length of stay in the 2 intervention groups did not differ (4.4 vs 5.1 days, $P = 0.28$). Path modeling revealed that decreases in anxiety before surgery predicted better physical function 2 weeks after surgery, which subsequently predicted better physical function 6 weeks after surgery.

Conclusion: A brief mindfulness-based intervention delivered perioperatively is feasible and can improve multiple clinical symptoms of relevance to surgical patients and their providers. In this study, mindfulness decreased preoperative anxiety and postoperative pain. Early evidence suggests mindfulness-related decreases in anxiety before surgery predicted quicker postoperative recovery.

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