Δ Pain Self-Efficacy Throughout Early Recovery Predicts Chronic Pain and Pain Severity 24 Months After Lower Extremity Fracture

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Purpose: Psychosocial factors carry important associations with outcomes after lower extremity fracture (LEF). However, no study to date has evaluated multiple psychosocial variables throughout recovery to assess associations with pain-related outcomes. The purpose of this study was to assess pain catastrophizing, pain self-efficacy, fear of movement, and depression at 6 weeks and 3 months after surgery to determine which construct predicted chronic pain development and pain severity at 24 months. We hypothesized that pain self-efficacy would be associated with all pain outcomes in operative patients with LEF.

Methods: 177 patients (41.9 ± 14.5 years) with an LEF requiring surgical fixation and no history of chronic pain were recruited from a Level I trauma center. Six weeks and 3 months after definitive surgical fixation, patients completed the Pain Catastrophizing Scale, Pain Self-Efficacy Questionnaire, Tampa Scale of Kinesiophobia-17, and PROMIS (Patient-Reported Outcomes Measurement Information System) Depression. Demographic and injury characteristics were extracted from the patient's medical record. Chronic pain development was assessed 24 months after surgery and was defined using the National Institutes of Health recommendation of pain present >3 months and bothersome at least half the days over the last 6 months. Patients also completed the Chronic Pain Grade Scale (CPGS) and the Brief Pain Inventory Pain Severity Subscale at 24 months. Separate multivariable regression analyses were conducted for each outcome, controlling for ISS, age, smoking status, body mass index, and psychosocial measures at6 weeks and 3 months.

Results: 138 patients (78%) completed this study, and 44 (31.9%) reported chronic pain at 24 months. Pain self-efficacy at 6 weeks and 3 months predicted chronic pain development (6-week odds ratio [OR]: 0.95, 95% confidence interval [CI]: 0.92-0.98, P = 0.001; 3-month OR: 0.93, 95% CI: 0.90-0.99, P< 0.001), CPGS (6-week OR:0.96, 95% CI: 0.93-0.99, P = 0.03; 3-month OR:0.94, 95% CI: 0.89-0.99, P = 0.01), and pain severity (6-week β: –0.04, 95% CI: –0.07 to –0.01, P = 0.005; 3-month β: –0.06, 95% CI: –0.1 to –0.02, P = 0.002) at 24 months. All other variables carried inconsistent predictive associations.

Conclusion: Low pain self-efficacy throughout early recovery predicted chronic pain and pain severity at 24 months. Early confidence and beliefs regarding recovery potential strongly influence patient outcomes. Physicians can utilize this 10-item questionnaire throughout recovery to identify at risk patients and interventions to optimize outcomes.

Δ OTA Grant