

**Patient-Reported Outcome Measures in Musculoskeletal Trauma Patients**

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**Purpose:** As the United States moves toward value-based care, there has been increasing emphasis on collecting and reporting patient-reported outcome measures (PROMs). However, PROMs are based on subjectively collected data with the potential for unreliable measurement and response bias. Importantly, the relationship between PROMs and clinical/real-world outcomes remain unclear. Further investigation on interpreting PROMs is required prior to utilizing them to drive clinical practice and prior to incorporating them into alternative payment models. The purpose of the present study is to identify the time course of recovery after traumatic injury and to identify variables independently associated with patient-reported outcome that account for the variation in recovery.

**Methods:** 720 patients who underwent fracture fixation from 2011 to 2018 who filled out PROMIS (Patient- Reported Outcome Measurement Information System) General Health (including Physical Component and Mental Component Scores) were identified from the medical record at 1 Level-I trauma center. The medical record was reviewed for demographic, treatment and admission characteristics. The trend in PROMIS Physical Component Score (PCS) during recovery was documented and linear regression was performed to identify variables accounting for variation in recovery.

**Results:** In this cohort, patients made the most rapid recovery during the first 6 months, at which time the mean PCS scores plateaued or worsened. There was an independent association between time after surgery (coefficient 0.30, 95% confidence interval [CI] 0.23 to 0.37), PROMIS Mental Component (between-persons coefficient 0.30, 95% CI 0.23 to 0.36, within-persons coefficient 0.17, 95% CI 0.13 to 0.22), BMI (body mass index) (coefficient -0.06, 95% CI -0.12 to -0.01), 2 or more psychiatric diagnoses (coefficient -1.32, 95% CI -2.40 to -0.24), readmission within 1 year (coefficient -2.14, 95% CI -3.24 to -1.04), lower extremity injury (coefficient -2.68, 95% CI -3.71 to -1.65), and multiple fractures (coefficient -2.41, -4.21 to 0.60).

**Conclusion:** Independent drivers of variation in PROMIS Physical Component Scores can be explained by PROMIS Mental Component Scores, BMI, having 2 or more psychiatric diagnoses, having a complication resulting in readmission within 1 year, lower extremity or multiple extremity injury (as compared to upper extremity injury). Appropriate risk adjustment of the above associations will aid in the use of PROMs in musculoskeletal patients.