

Role of Preoperative Patient Reported Outcomes Measurement Information System (PROMIS) in Predicting Final Disability in Patients with Workers' Compensation

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INTRODUCTION:

Patients seeking treatment with Workers' Compensation (WC) have been found to have poor outcomes following arthroscopic rotator cuff repair (ARCR). Orthopaedic surgeons are asked to determine percent disability for patients at subsequent postoperative visits; however, further elucidation of effective predictors of final disability is warranted. Patient Reported Outcomes Measurement Information System (PROMIS) surveys have been previously used to evaluate surgical outcomes; however, their relationship with final WC disability is unclear. The aim of this study was to determine whether preoperative PROMIS scores across the domains of physical function (PF), pain interference (PI), and depression (D) are predictive of final disability in patients with WC undergoing ARCR.

METHODS:

This was a retrospective study of patients with WC undergoing ARCR between 2015 and 2023 at a single institution. Preoperative PROMIS scores were captured within 6 months prior to surgery, while postoperative scores were recorded between 2 and 4 years after surgery. Higher PF scores were associated with greater physical function, while higher PI and D scores were associated with greater pain interference and depression respectively. Patients were stratified into two cohorts based on recorded percent disability at final follow-up: < 50% and \geq 50%. Two-sample t-tests were performed to determine differences in preoperative and postoperative PROMIS scores. Univariate logistic regression was performed to determine if preoperative PROMIS scores were associated with final disability. Statistical significance was defined as $p < 0.05$.

RESULTS:

Ultimately, 122 patients with WC were included for analysis; the mean age of the cohort was 56.5 (7.6) years and 44.3% female. Of the 122 patients, 50 had final disability \geq 50% and 72 had final disability < 50%. Significant differences were observed for PROMIS scores across PF, PI, and D between the two cohorts (Tables 1 and 2), with patients in the < 50% cohort having higher PF, as well as lower PI and D scores, compared to patients in the \geq 50% cohort both preoperatively and postoperatively. Per univariate logistic regression, higher preoperative PF scores were associated with reduced likelihood of final disability \geq 50% (OR: 0.93; 95% CI: [0.88, 0.98]; $p = 0.01$). On the other hand, higher preoperative PI scores were associated with greater likelihood of final disability \geq 50% (OR: 1.07; 95% CI: [1.00, 1.14]; $p = 0.04$). Likewise, higher D scores were associated with greater likelihood of final disability \geq 50% (OR: 1.05; 95% CI: [1.01, 1.10]; $p = 0.01$).

DISCUSSION AND CONCLUSION:

Preoperative PROMIS scores across PF, PI, and D were predictive of final disability in patients with WC undergoing ARCR. Thus, administering PROMIS surveys to this patient population prior to ARCR may be useful in predicting postoperative outcomes.

Table 1: Preoperative PROMIS scores

	Final disability < 50% (n = 72)	Final disability \geq 50% (n = 50)	p-value
Preop PF	40.5 (7.0)	37.1 (6.8)	$p < 0.01$
Preop PI	62.5 (5.9)	64.7 (5.7)	$p = 0.04$
Preop D	47.7 (9.6)	52.9 (10.7)	$p < 0.01$

Table 2: Postoperative PROMIS scores

	Final disability < 50% (n = 72)	Final disability \geq 50% (n = 50)	p-value
Postop PF	40.9 (7.2)	36.4 (6.7)	$p < 0.01$
Postop PI	60.2 (6.8)	63.8 (6.0)	$p < 0.01$
Postop D	46.7 (10.1)	53.2 (10.7)	$p < 0.01$