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INTRODUCTION: Patient-Reported Outcomes Measurement Information System (PROMIS) scores have been utilized in setting realistic post-intervention expectations. Having a model to stratify likelihood of improvement based on pre-operative variables may allow for better decision making and patient counseling. We hypothesized that preoperative PROMIS scores correlate with patients' subjective level of improvement after trapeziectomy and ligament reconstruction with tendon interposition (LRTI)

METHODS: Retrospective chart review was performed to identify patients who underwent trapeziectomy and LRTI. Demographic data along with preoperative PROMIS Upper Extremity (UE), Pain Interference (PI), Depression (DP), and QuickDASH (QD) scores were collected. At their follow-up appointment, patients were asked a follow-up anchor question: "Since your treatment, how would you rate your overall function?". Possible responses represent a 7-point Likert scale from "Much Worse" to "Much Improved". Significance between preoperative scores and subjective improvement were modeled using univariable logistic regression. Correlation between preoperative scores and patient anchor question response was calculated using Receiver Operating Characteristic (ROC) Curves and reported as area under the curve (AUC) (values 0.6 - 0.69; moderate predictive ability, 0.7 - 0.79; strong, and > 0.8; excellent).

RESULTS SECTION: There were 69 patients included in this study. The mean age was 62 years and 78% of patients were female. The median follow-up time was 40 days (interquartile range 13-86 days). Forty-two patients (61%) reported "somewhat improved" or better and 27 patients (39%) reported "no change" or worse. Univariate logistic regression revealed that preoperative PROMIS Depression scores were significantly correlated with achieving subjective improvement (Table 1), with patients with higher pre-operative depression scores demonstrating a lower likelihood of reporting improvement. ROC curves an AUC of 0.76 for preoperative PROMIS Depression scores indicating a strong predictive ability (Table 2). Preoperative PROMIS UE, PI, and QD scores were not significantly correlated with subjective improvement.

DISCUSSION: Patients with higher preoperative PROMIS Depression scores are significantly less likely to report improvement after trapeziectomy with LRTI; this had overall strong predictive ability. Development of a predictive model through utilization of preoperative PROMIS Depression scores will allow for providers to elucidate improved decision making and more realistic patient expectations after intervention which may improve patient satisfaction overall. Lack of significant correlation between PROMIS UE, PI, and QD scores and subjective improvement indicates a limitation of this study in utilizing these scores within the predictive model.

SIGNIFICANCE/CLINICAL RELEVANCE: This study is significant because use of preoperative PROMIS Depression scores to predict patients' likelihood to improve after trapziectomy and LRTI may improve patient selection and pre-operative counseling in the future.

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IMAGES AND TABLES:
Table 1. Univariable Logistic Regression. Odds ratio are reported relative to achieving subjective improvement.

	Non-Improved [Mean (SD)]	Improved [Mean (SD)]	Odds Ratio (1-point increase)	95% Confidence Interval	P-value
Preop UE	31.5 (5.6)	32.1 (5.6)	1.03	0.94-1.12	P = 0.56
Preop PI	63 (7.9)	61.4 (5.1)	0.95	0.87-1.04	P = 0.30
Preop DP	52.6 (4.6)	45.8 (9.7)	0.88	0.77-1.00	**P = 0.03**
Preop QD	55.1 (18.4)	51.0 (17.0)	0.98	0.96-1.01	P= 0.37

Preop, Preoperative; UE, PROMIS Upper Extremity; PI, PROMIS Pain Interference; DP, PROMIS Depression; QD QuickDASH

Table 2. ROC Curve illustrating diagnostic abilities of the preoperative PROMIS and QD scores to predict subjective patient outcome (AUC values of 0.6 to 0.69 - moderate predictive ability, 0.7 to 0.79 - strong, and > 0.8 - excellent).

Variable	AUC
UE	0.55
PI	0.65
DP	0.76
QD	0.60

AUC, Area Under the Curve; UE, Preoperative PROMIS UE Score; PI, Preoperative PROMIS PI Score; DP, Preoperative PROMIS Depression Score; QD, Preoperative QuickDASH Score