Introduction

Patient dissatisfaction following total hip arthroplasty (THA) is linked to unmet expectations. This study aims to quantify patient expectations with modified patient reported outcome (PRO) questionnaires to perform direct comparison between expected and observed 12-month PRO changes and minimal clinically important difference (MCID).

Methods

THA patients were asked to complete the following surveys at baseline, 6 months postoperatively, and 12 months postoperatively: Veteran's RAND (VR-12), Hip Injury and Osteoarthritis Outcome Scor-12 (HOOS-12), Patient Reported Outcome Measurement Information System Physical Function (PROMIS-PF) and PROMIS Pain Interference (PROMIS-PI). Prior to surgery, patients also indicated what they expected their responses to be for each PRO item at the 6-and 12-month postoperative timepoint. Patient satisfaction was assessed at 6 and 12 months postoperatively. Expected PROs, actual PROs, and MCID values were compared. Point-biserial correlations were used to determine associations with satisfaction.

Results

A final cohort of 85 patients (mean age 76.8 SD 9.3, 37.6% male, BMI 29.2 SD 5.5, mean ASA Score 2.6 SD 0.5) were included. All expected PROs as reported at baseline were significantly greater than observed at 12 months ($p<0.05$). All baseline expected 12-month PROs were also significantly greater than MCID values ($p<0.05$). MCID achievement of PROs at 12-months was as follows: HOOS-12 90.6%, PROMIS-PF 60.0%, and PROMIS-PI 74.1%. The differences between expected and observed PROs (baseline expected PROs –12-month observed PROs) were significantly associated with patient dissatisfaction (r range: -0.99- -0.58, $p=0.01$).

Additionally, all observed improvements in PROs were significantly associated with patient satisfaction (r range: 0.33-1.0, $p<0.05$).

Conclusion

Patient preoperative expectations were significantly greater than outcomes and MCID values, with a gap in expectations at baseline and observations at 12 months significantly associated with patient dissatisfaction. Discussions regarding expectations preoperatively may mitigate dissatisfaction and warrant further study.

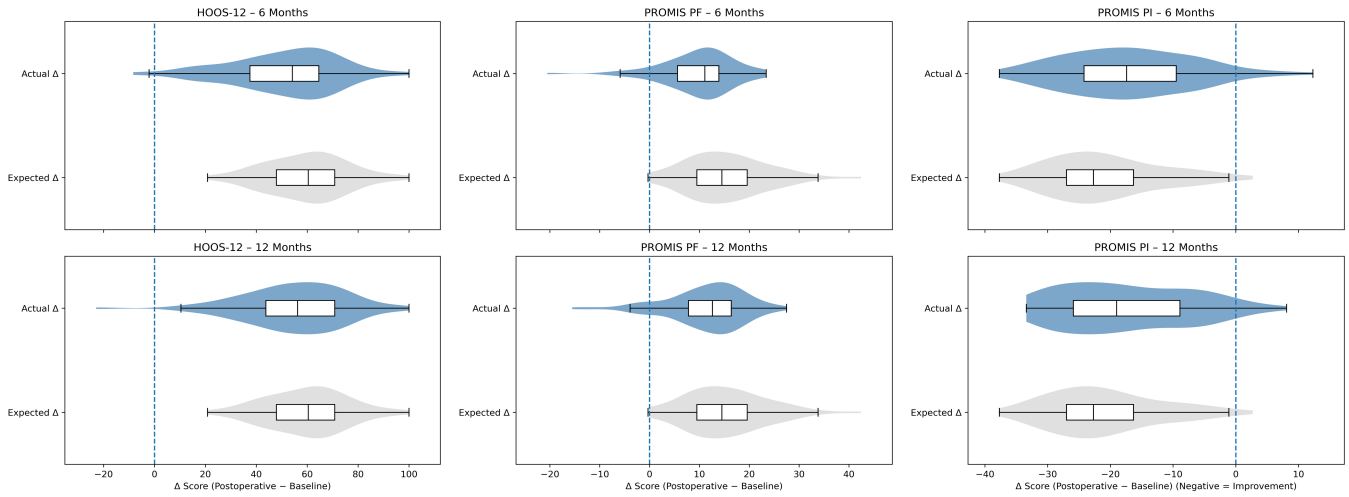

Figure 1. Distributions of expected and observed changes in HOOS-12, PROMIS Physical Function, and PROMIS Pain Interference scores at 6 and 12 months following total hip arthroplasty.

Violin plots depict the distributions of patient-expected and observed changes in HOOS-12, PROMIS Physical Function, and PROMIS Pain Interference scores (Δ score, postoperative minus baseline) at 6 months (top panel) and 12 months (bottom panel). Embedded boxplots indicate the median and interquartile range for each distribution. The dashed vertical line at $\Delta = 0$ represents no change from baseline. Expected Δ values reflect patient expectations for improvement at the corresponding timepoint, while observed Δ values represent actual postoperative change.

Table 1: MCID Achievement Rates at 6 Months and 12 Months Post-op (n = 85)		
ΔPRO	Number of Patients with ΔPRO > MCID	Percent of Patients with ΔPRO > MCID
MCID Achievement Rates at 6 Months		
ΔHOOS-12	73	85.9%
ΔPROMIS PF	41	48.2%
ΔPROMIS PI	64	75.3%
MCID Achievement Rates at 12 Months		
ΔHOOS-12	77	90.6%
ΔPROMIS PF	51	60.0%
ΔPROMIS PI	63	74.1%

Table 1. Achievement of minimal clinically important difference (MCID) in patient-reported outcome measures at 6 and 12 months following total hip arthroplasty.

The table summarizes the number and proportion of patients whose observed change in patient-reported outcome (ΔPRO) exceeded the established MCID threshold at each postoperative timepoint. MCID achievement is reported separately for the Hip disability and Osteoarthritis Outcome Score–12 (HOOS-12), PROMIS Physical Function (PROMIS PF), and PROMIS Pain Interference (PROMIS PI). Observed change (ΔPRO) was calculated in the direction of clinical improvement for each instrument, using MCID thresholds defined *a priori*. All values are reported as count and percentage of the total cohort (n = 85).