

# One Year Postoperative Outcomes Suffice: Assessing the Clinical Relevance of PROMs Beyond the First Year Following Arthroscopic Rotator Cuff Repair

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**INTRODUCTION:** Arthroscopic rotator cuff repair (RCR) is a common surgical procedure for treating rotator cuff tears. While previous studies have shown significant improvements in patient-reported outcomes (PROs) during the first postoperative year, there is limited data on the clinical relevance of changes in PROs between 1 and 2 years after surgery. This study aimed to evaluate whether there are clinically significant changes in PROs and clinically significant outcomes (CSOs) between 1 and 2 years after arthroscopic RCR.

**METHODS:** A retrospective analysis of prospectively collected data was conducted on 140 patients who underwent arthroscopic RCR. (Table 1) PROs, including the American Shoulder and Elbow Surgeons (ASES) score, Visual Analog Scale (VAS) for pain, and Pittsburgh Sleep Quality Index (PSQI), were assessed preoperatively and at 6 months, 1 year, and 2 years postoperatively. CSOs, such as the minimal clinically important difference (MCID), substantial clinical benefit (SCB), and patient acceptable symptom state (PASS), were determined for each PRO. Linear regression analysis was performed to identify demographic and clinical factors associated with changes in PROs between 1 and 2 years.

**RESULTS:** The mean ASES score improved from 80.7±13.4 at 1 year to 81.8±14.3 at 2 years (p=0.008), with a 2.2% increase in the percentage of maximum outcome improvement (p=0.010). (Figure 1) The mean VAS score decreased from 2.3±1.1 at 1 year to 2.2±1.1 at 2 years (p<0.001), with a 1.6% increase in the percentage of maximum outcome improvement (p<0.001). (Figure 2) The mean PSQI score decreased from 3.4±1.2 at 1 year to 2.8±0.8 at 2 years (p<0.001), with a 5.9% increase in the percentage of maximum outcome improvement (p<0.001). (Figure 3) The proportion of patients achieving CSOs remained relatively stable between 1 and 2 years for ASES, VAS, and PSQI. Regression analysis revealed that diabetes, concomitant subscapularis tear, and sagittal tear size were associated with changes in ASES scores between 1 and 2 years, while dominant side and concomitant subscapularis tear were associated with changes in VAS and PSQI scores, respectively. (Table 2)

**DISCUSSION AND CONCLUSION:** Although statistically significant improvements in PROs were observed between 1 and 2 years after arthroscopic RCR, these changes may not be clinically relevant for most patients, as evidenced by the relatively stable proportion of patients achieving CSOs for ASES, VAS, and PSQI. Specific demographic and clinical factors may influence changes in PROs during this period. These findings suggest that 1-year postoperative PROs may be sufficient for assessing short-term outcomes after arthroscopic RCR in most patients, although longer follow-up may be warranted in specific subgroups.

Figure 1. Cohort Achieving Clinically Significant Outcomes in ASES

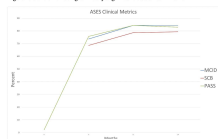


Figure 2. Cohort Achieving Clinically Significant Outcomes in VAS

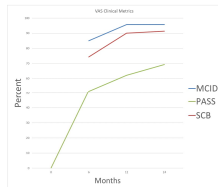


Figure 3. Cohort Achieving Clinically Significant Outcomes in PSQI

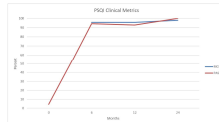


Table 1. Demographic Data

Demographics	Female	Male
Sex	63 (45%)	77 (55%)
Age (Years)	Mean(SD)	54.6±12.2
Side	Right	72 (51%)
	Left	68 (49%)
Dominant Side	Yes	87 (62%)
	No	53 (38%)
Smoker	Yes	31 (22%)
	No	109 (78%)
BMI	Mean(SD)	27.3±2.7
Diabetes	Yes	24 (17%)
	No	116 (83%)
Hypertension	Yes	52 (37%)
	No	88 (63%)
Hypothyroidism	Yes	44 (32%)
	No	96 (68%)
Concomitant Subscapularis Tear	Yes	18 (13%)
	No	122 (87%)
Greater Curvature	Mean(SD)	1.3±1.4
Complication	Yes	12 (9%)
	No	128 (91%)
Reoperation	Yes	21 (15%)
	No	119 (85%)

Table 2. Factors Influencing Changes in PROMs from Year 1 to 2

Variable	Change	1 YR	2 YR	Change	1 YR	2 YR
Age	0.008	0.140	0.001	0.001	0.001	0.001
Sex	0.014	0.001	0.001	0.001	0.001	0.001
Side	0.014	0.001	0.001	0.001	0.001	0.001
Diabetes	0.001	0.001	0.001	0.001	0.001	0.001
Hypertension	0.001	0.001	0.001	0.001	0.001	0.001
Hypothyroidism	0.001	0.001	0.001	0.001	0.001	0.001
Concomitant Subscapularis Tear	0.001	0.001	0.001	0.001	0.001	0.001
Greater Curvature	0.001	0.001	0.001	0.001	0.001	0.001
Complication	0.001	0.001	0.001	0.001	0.001	0.001
Reoperation	0.001	0.001	0.001	0.001	0.001	0.001