Reaching Minimally Clinically Important Differences for American Shoulder and Elbow Surgeons, Single Assessment Numeric Evaluation, and Simple Shoulder Test following Shoulder Arthroplasty Does Not Correlate with Patient Satisfaction at 2-Year Minimum Follow Up

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INTRODUCTION: There has been a contemporary push to establish minimally clinically important differences (MCID) for various outcomes measures in the orthopaedic literature as it has potential to serve as a metric to evaluate treatment effectiveness. A recent systematic review showed that multiple studies that have reported MCID values for shoulder surgery have poor study methodology and lack sufficient data for statistical credibility. For determination of MCID, a 4 question anchoring questionnaire is typically utilized; however, these anchoring questions do not account for a patient's overall satisfaction with their surgical outcome. This study aimed to evaluate if reaching previously established MCID values for American Shoulder and Elbow Surgeons (ASES), Single Assessment Numeric Evaluation (SANE), and Simple Shoulder Test (SST) at 2 years following shoulder arthroplasty correlated with overall patient satisfaction with surgical outcome, willingness to undergo the same operation, and willingness to recommend the operation to a friend or family member for the same condition.

METHODS:

This was a single institution, retrospective, cohort study of all patients who underwent primary shoulder arthroplasty (anatomic or reverse) from 2015 to 2019. Patients with complete preoperative and 2-year postoperative ASES, SANE, and SST scores were included. MCID values previously established in the literature were utilized for ASES (20.09), SANE (14.9), and SST (2.4). Patients were contacted and underwent a survey to assess 3 outcome metrics: 1) on a scale of 1 to 10, what is your overall satisfaction with your surgical outcome?; 2) if you could go back in time, would you undergo this operation again? (yes/no) 3) for the same condition, would you recommend this operation to a friend or family member? (yes/no). Spearman correlation coefficients were run to assess the relationship between reaching MCID and the three outcome metrics above.

RESULTS: Three-hundred-fifty-three patients met inclusion criteria and completed the outcome metric survey. There were 199 (56.4%) male patients with an average age of 67.3 +/- 7.7 years. Mean preoperative ASES was 44.2 +/- 16.4, SANE was 35.5 +/- 18.9, and SST was 4.5 +/- 2.56. At 2 years postoperatively, mean ASES was 87.8 +/- 16.0, SANE was 87.1 +/- 15.7, SST was 9.8 +/- 2.38. Mean patient satisfaction was 9.03 +/- 1.96 and 330 (93.5%) patients would undergo surgery again as well as recommend surgery to a friend or family member. In total, 85.0% of patients reached MCID for ASES, 92.9% of patients reached MCID for SANE, 82.2% of patients reached MCID for SST, 73.4% of patients reached MCID in all three outcome metrics, and 3.4% of patients did not reach MCID in any metric [**Table 1**]. Spearman Correlation Coefficients were weak to very weak for reaching MCID and all study outcome metrics [**Table 2**].

DISCUSSION AND CONCLUSION: Patient's overall satisfaction, willingness to undergo surgery again, or willingness to recommend surgery to a friend or family member does not correlate with reaching MCID in ASES, SANE, or SST following shoulder arthroplasty. While patent satisfaction is not the only metric of a successful surgical procedure and is subject to potential bias from cognitive dissonance, it is an important consideration when indicating patients for shoulder arthroplasty and evaluating long-term outcomes. Further investigation into the statistical credibility and ultimate clinical value of currently defined MCID values for shoulder arthroplasty in the orthopaedic literature is indicated.

Table 1. A) Number patients that reached MCID in ASES, SANE, and SST at 2 years postoperatively. B) Patients stratified by the number of outcomes measures in which they reached MCID.

Table 2. Spearman Correlation Coefficients for reaching MCID in A) ASES, B) SANE, C) SST, and D) all three outcomes measure and outcome metrics of patient overall satisfaction, willingness to undergo surgery again, and willingness to recommend surgery to a friend or family member.

A)

Patient Reported Outcomes	Number of Patients (N=353)	
	Reached MCID (%)	Did not Reach MCID (%)
ASES	300 (85.0%)	53 (15.0%)
SANE	328 (92.9%)	25 (7.08%)
SST	291 (82.2%)	62 (18.1%)

B)

Number of Outcomes Reached MCID	Number of Patients (N =353)
0	12 (3.40%)
1	24 (6.80%)
2	58 (16.4%)
3	259 (73.4%)

A)

Reached MCID ASES	Spearman Correlation Coefficient	
Patient Overall Satisfaction	0.3514	weak
Willing to Undergo Surgery Again	-0.1641	very weak
Willing to Recommend Surgery	-0.2212	weak

B)

Reached MCID SANE	Spearman Correlation Coefficient	
Patient Overall Satisfaction	0.2606	weak
Willing to Undergo Surgery Again	-0.2068	weak
Willing to Recommend Surgery	-0.2039	weak

C)

Reached MCID SST	Spearman Correlation Coefficient	
Patient Overall Satisfaction	0.3023	weak
Willing to Undergo Surgery Again	-0.1657	very weak
Willing to Recommend Surgery	-0.2450	weak

D)

Reached MCID all metrics	Spearman Correlation Coefficient	
Patient Overall Satisfaction	0.3726	weak
Willing to Undergo Surgery Again	-0.1644	very weak
Willing to Recommend Surgery	-0.2330	weak