Closing the Satisfaction Gap: Medial UKA and Cruciate-Retaining TKA Yield Comparable 1-Year Patient Reported Outcome Measures (PROMs)

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INTRODUCTION: Medial unicompartmental knee arthroplasty (mUKA) has consistently demonstrated superior patient satisfaction compared with total knee arthroplasty (TKA) Historically, its use was limited by strict selection criteria. However, advances in implant design and technique have expanded indications for mUKA. Simultaneously, TKA has undergone substantial improvements. These parallel developments narrow traditional distinctions and create a “grey zone” where either procedure may be appropriate. Thus, we compared 1-year patient-reported outcome measures (PROMs) and healthcare utilization between mUKA and cruciate-retaining (CR) -TKA.

METHODS: We analyzed 2805 CR-TKA and 702 mUKA cases performed between 2016-2023 using a prospective institutional registry (median age: 68 years; 55% women; 89% White). Baseline and 1-year PROMs including Knee Injury and Osteoarthritis Outcome Score (KOOS) for Pain, Physical Function Shortform (PS), Joint Replacement (JR), and Veterans RAND 12-Item Mental Component Summary (VR-12 MCS) were collected. Clinically meaningful improvement was assessed using minimal clinically important difference (MCID) and Patient Acceptable Symptom State (PASS) thresholds. Healthcare utilization included length of stay (LOS), discharge disposition, 90-day readmissions, 1-year reoperations, and 1-year mortality. Multivariable regression models adjusted for demographics and clinical variables compared outcomes between mUKA and CR-TKA.

RESULTS: At 1 year, 82%–93% of mUKA and 84%–94% of CR-TKA patients achieved MCID thresholds for KOOS subscales. PASS thresholds achievement ranged from 69%-71% for mUKA and 68%-73% for CR-TKA. Satisfaction was reported by 83% of mUKA and 87% of CR-TKA patients. In multivariable models, CR-TKA compared to mUKA showed no significant associations with 1-year KOOS-Pain, PS, JR, failure to achieve MCID and PASS thresholds, and risk of dissatisfaction. CR-TKA was significantly associated with LOS >3 days and non-home discharge.

DISCUSSION: CR-TKA and mUKA demonstrated comparable 1-year PROMs and satisfaction. However, CR-TKA was associated with greater healthcare utilization. These findings challenge the longstanding belief that mUKA yields superior patient satisfaction and highlight the evolving overlap in indications for both procedures. Future research should explore long-term outcomes to refine evidence-based selection criteria and indications.

CLINICAL RELEVANCE: In modern practice, mUKA and CR-TKA yield comparable 1-year pain relief, function, and satisfaction; the key trade-off is higher length of stay and more non-home discharges after CR-TKA. Procedure choice should be driven by patient factors and expectations rather than an assumed PROM advantage, with counseling on differing resource needs.

Table 3: Multivariate Analysis of CR-TKA Versus mUKA PROMS and Healthcare Utilization

Outcomes	β or OR (CR-TKA vs mUKA)	95% CI	P-Value
1-year PROM scores			
KOOS-Pain	0.26	[-1.42, 1.94]	0.763
KOOS-PS	-0.41	[-1.92, 1.10]	0.592
KOOS-JR	0.48	[-1.09, 2.05]	0.551
Clinically Meaningful Thresholds (Failure)			
MCID Threshold for KOOS-Pain	1.07	[0.71, 1.64]	0.739
MCID Threshold for KOOS-PS	0.9	[0.68, 1.20]	0.483
MCID Threshold for KOOS-JR	0.96	[0.66, 1.38]	0.816
PASS Threshold for KOOS-Pain	0.9	[0.71, 1.14]	0.392
PASS Threshold for KOOS-PS	1.09	[0.86, 1.38]	0.491
PASS Threshold for KOOS-JR	0.93	[0.73, 1.18]	0.543
PASS (Satisfaction)	0.8	[0.60, 1.07]	0.133
Healthcare Utilization			
LOS≥3 days	12.93	[4.09, 40.84]	**<0.001**
DD (non-home)	4.39	[1.76, 10.95]	**0.002**
90-day Readmission	1.71	[0.99, 2.94]	0.055

β = regression coefficient (continuous outcomes); OR = odds ratio (binary outcomes); CI = confidence interval; PS: Physical function Shortform; JR: Joint replacement; MCID: Minimal Clinically Important Difference; PASS: Patient Acceptable Symptom State; LOS: Length of Stay; DD: Discharge Disposition