

Impact of Preoperative Education Course Participation on Patient-Reported Outcomes After Total Joint Arthroplasty

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Introduction: Surgical practices are constantly seeking ways to better prepare patients for their procedure while ensuring an optimal recovery. Preoperative education courses have emerged as a viable, cost effective, strategy that gives patients the proper knowledge to set postoperative goals and expectations. Studies show that these courses can have a positive impact on patient reported outcome measures (PROMs), but no literature exists that examines the courses impact on PROMs beyond three months. This study aims to compare one-year recovery outcomes between patients who underwent total joint arthroplasty (THA and TKA) with and without participation in the course.

Methods: A retrospective review was conducted on 3356 patients aged 18 or older, who underwent primary total hip or knee arthroplasty at a single institution between July 2023 and November 2024. Patients were grouped based on course participation (course completed n=2877 (85.7%); course not completed n=479(14.3%)). Demographic data, including age, sex, and BMI were collected through the hospital's EMR system while HOOS JR, KOOS JR, PROMIS-10 Physical and Mental scores at preoperative, 3-, 6-, and 12-month postoperative time intervals were obtained via a digital PROMs platform. An independent t-test was performed to assess the differences between course and non-course patients with significance set at $p < .05$.

Results: Among TKA patients, statistically significant improvements at the 3- and 6-month timepoint ($p = .0279$, $p = .0002$) were observed in KOOS JR scores for patients who participated in the course versus those who did not. TKA patients who took the course also saw improved PROMIS-10 Physical and Mental scores over their non-course counterparts with mental health benefits persisting at 12-months ($p = .0142$). THA patients who participated showed higher HOOS JR scores at 3-, 6- and 12-months ($p < .05$), while also showing sustained improvements in both Physical and Mental scores at 6- and 12-months in comparison to non-participants of the course.

Discussion: Preoperative education was associated with significant and sustained improvements in patient-reported outcomes, particularly among THA patients. Further research is required to understand what aspects of the course, along with other potential factors between the two groups, are leading to improved outcomes.

Significance/Clinical Relevance: Preoperative education was associated with sustained improvements in recovery after total joint arthroplasty and may represent a cost-effective strategy to enhance patient outcomes.

Tables:

Table 1. Comparison of Demographics Among THA Patients who did and did not take the course

Variable	Yes n=1100	No n=181	P Value
Age, yr	64.61 ± 11.25	64.68 ± 12.58	0.9411
BMI (n=1268)			
Yes (n=1089)	30.37 ± 6.54	29.61 ± 6.13	0.7548
No (n=178)	15.8 ± 53.6	14.3 ± 47.8	
Sex			
Male	n= 497 45.18%	n= 94 52.8%	0.0699
Female	n= 603 54.82%	n= 84 47.2%	
LOS, days			
Yes (n=991)	0.844 ± 0.61	1.065 ± 0.959	0.0001
No (n=157)	0.6 ± 0.83	0.17 ± 8.17	
MME			
Yes (n=871)	37.54 ± 45.47	50.14 ± 69.58	0.0055
No (n=139)	1.25 - 933.5	1.625-890	
Pain at 2hr			
Yes (n=983)	5.34 ± 2.51	5.6 ± 2.63	0.2387
No (n=155)	0-10	0-10	
Pain at discharge			
Yes (n=990)	4.57 ± 2.24	4.66 ± 2.39	0.6597
No (n=157)	0-10	0-9	

Table 2. Comparison of Demographics Among TKA Patients who did and did not take the course

Variable	Yes n=1777	No n=298	P Value
Age, yr	67.97 ± 8.71	69.9 ± 9.4	0.0005
BMI (n=2051)			
Yes (1757)	32.22 ± 6.68	31.53 ± 6.28	1000
No (294)	16.9-57.9	18.7-53.8	
Sex			
Male	n= 707 39.7%	n= 106 35.5%	2504
Female	n= 1070 60.2%	n= 188 63.08%	0.296
LOS, days			
Yes (n=1547)	0.936 ± 0.813	1.059 ± 0.991	0.7525
No (n=257)	0-11.17	5-215	
MME usage			
Yes (n=1377)	42.6 ± 52.31	41.45 ± 36.55	0.1840
No (n=225)	0-1076	5-215	
Pain at 2hr			
Yes (n=1524)	5.232 ± 2.65	5.472 ± 2.64	0.1049
No (n=252)	0-10	0-10	
Pain at discharge			
Yes (n=1533)	4.65 ± 2.408	4.91 ± 2.28	0.1049
No (n=234)	0-10	0-10	

Table 3. PROMs of TKA and THA Patients

Interval	Yes	No	P Value
KOOS JR			
Preop	49.88 ± 13.13 (n= 1576)	48.27 ± 13.15 (n=226)	0.769
3 months	69.34 ± 13.54 (n= 1498)	66.87 ± 15.78 (n=207)	.0279
6 months	72.69 ± 15.02 (n= 1487)	68.26 ± 15.76 (n= 193)	.0002
12 months	75.42 ± 15.71 (n= 999)	74.07 ± 17.20 (n= 114)	.4337
PROMIS-10 Physical - TKA			
Preop	41.04 ± 6.82 (n= 1554)	40.13 ± 6.61 (n=226)	0.006
3 months	47.18 ± 7.53 (n= 1455)	45.25 ± 8.16 (n= 201)	.0010
6 months	47.59 ± 7.94 (n= 1374)	45.52 ± 7.97 (n= 182)	.0008
12 months	47.88 ± 8.15 (n=853)	46.56 ± 8.07 (n= 96)	.1243
PROMIS-10 Mental - TKA			
Preop	50.41 ± 8.55 (n= 1554)	49.39 ± 8.65 (n= 226)	.1362
3 months	51.82 ± 8.07 (n= 1455)	50.52 ± 8.52 (n= 201)	.0493
6 months	51.89 ± 8.23 (n= 1374)	49.33 ± 8.65 (n= 182)	.0001
12 months	52.12 ± 7.9 (n= 853)	49.94 ± 8.21 (n= 96)	.0142
HOOS JR			
Preop	51.43 ± 14.37 (n= 979)	49.53 ± 16.49 (n= 140)	1608
3 months	79.05 ± 14.37 (n= 945)	74.76 ± 17.81 (n= 135)	.0022
6 months	82.20 ± 15.57 (n= 923)	78.24 ± 17.65 (n= 131)	.0093
12 months	85.80 ± 14.75 (n= 618)	80.62 ± 17.39 (n= 93)	.0024
PROMIS-10 Physical - THA			
Preop	40.40 ± 6.99 (n= 972)	39.35 ± 7.72 (n= 142)	1121
3 months	48.85 ± 8.31 (n= 911)	47.52 ± 9.19 (n= 130)	1366
6 months	49.76 ± 8.46 (n= 854)	46.87 ± 9.37 (n= 121)	.0009
12 months	50.35 ± 9.16 (n= 545)	46.83 ± 9.86 (n= 87)	.0015
PROMIS-10 Mental - THA			
Preop	50.22 ± 9.00 (n= 972)	48.86 ± 9.59 (n= 142)	1147
3 months	52.79 ± 8.38 (n= 911)	52.04 ± 8.22 (n= 130)	4278
6 months	53.27 ± 8.30 (n= 854)	50.99 ± 9.39 (n= 121)	.0064
12 months	52.71 ± 8.46 (n= 545)	50.16 ± 9.28 (n= 87)	.0146