

# Preoperative Resilience is Not Associated with Patient-Reported Outcomes following Meniscectomy: A Prospective Cohort Study

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## INTRODUCTION:

Many factors influence patient-reported outcomes following partial meniscectomy, including presence and degree of osteoarthritis, duration of symptoms, and amount of tissue resected. Recent studies in other domains of orthopaedics have identified resilience as another element that may impact patient outcomes. Clarifying any relationship between resilience and outcomes following meniscectomy is critical to identifying patients at risk for poor long-term outcomes. We hypothesize there is no correlation between resilience and patient-reported outcomes (PROs) following meniscectomy.

## METHODS:

Patients who underwent meniscectomy from January to June 2020 at a single, multicenter institution were identified. Patients over 18 years of age without evidence of significant osteoarthritis who completed the Brief Resilience Scale (BRS) preoperatively were considered for inclusion. Included patients were also evaluated using the International Knee Documentation Committee (IKDC), and Knee Injury and Osteoarthritis Outcome Score, and Joint Replacement (KOOS JR) surveys at a minimum of 2-years postoperatively. Patients were stratified into low-, normal- and high-resilience groups, determined by preoperative resilience, to examine differences and changes in outcomes among the groups. An identical analysis was performed when excluding patients with any self-reported history of anxiety or depression.

## RESULTS:

An analysis of 100 patients found that those with high resilience preoperatively had higher concurrent preoperative IKDC (P = .004) and KOOS JR (P=.003) scores. At 2-year follow up, patients in the low-resilience group met the patient acceptable symptomatic state (PASS), as determined by the KOOS JR score, at significantly lower rates than the normal and high resilience groups (P = .036). There were no other clinically or statistically significant differences in patient-reported outcomes (PROs) at 2-year follow-up between groups. Similarly, no significant correlation was found between preoperative or postoperative resilience and PROs.

When excluding patients with a history of anxiety and/or depression, an analysis of 62 patients revealed patients in higher preoperative resilience groups had significantly higher preoperative KOOS JR scores (P=0.016). Additionally, at 2-year follow up, those in the lower preoperative resilience group met PASS, determined by KOOS JR, significantly less frequently than those in the normal or high resilience group (33.3% vs. 82.4% vs. 90%, P =0.009). At 2-year follow up, groups did not differ by any other PROs.

## DISCUSSION AND CONCLUSION:

This study expands on the available literature examining the relationship between resilience and orthopaedic procedures. Neither preoperative resilience nor postoperative resilience significantly correlated with patient-reported outcomes at 2 years following surgery. Furthermore, there was no significant difference in patient outcomes with respect to preoperative resilience when excluding those patients with a self-reported history of anxiety and/or depression.

	Low (n=17)	Normal (n=55)	High (n=18)	P Value
Preoperative Resilience	3.00 [2.83;3.33]	3.83 [3.67;4.17]	5.00 [4.87;5.00]	<.001*
Postoperative Resilience	3.17 [2.33;3.67]	4.00 [3.67;4.17]	4.33 [4.00;4.79]	<.001*
Change in Resilience from preoperative to 2 years	0.17 [-0.50;0.67]	0.00 [-0.33;0.33]	-0.58 [-1.00;-0.21]	.001*
Resilience Groups at 2 Years				<.001*
Low	8 (47.1%)	5 (7.69%)	1 (5.56%)	
Normal	9 (52.9%)	55 (84.6%)	11 (61.1%)	
High	0 (0.00%)	5 (7.69%)	6 (33.3%)	

Table 1: Patient preoperative, 2-year postoperative resilience, change in resilience and postoperative resilience groups organized by preoperative resilience grouping. Median [1<sup>st</sup> Quartile, 3<sup>rd</sup> Quartile]. No (%) Mean (SD)

	Low (n=17)	Normal (n=55)	High (n=18)	P Value
Preoperative Scores				
Preoperative IKDC	30.8 [22.7;43.9]	41.4 [33.0;54.2]	54.3 [35.2;66.9]	0.004*
Preoperative KOOS JR	44.9 [39.6;52.5]	54.8 [47.5;63.8]	62.7 [48.1;75.6]	0.003*
Postoperative Scores				
Postoperative IKDC	67.8 [52.9;88.5]	80.5 [60.9;88.5]	82.8 [66.7;92.0]	0.431
Postoperative KOOS JR	68.3 [61.6;100]	84.6 [70.7;100]	84.6 [70.7;100]	0.298
Postoperative VAS	31.0 [13.0;50.5]	13.0 [1.75;32.2]	7.00 [0.00;29.0]	0.175
Postoperative SANE of Contralateral Knee	96.5 [85.0;100]	97.0 [90.0;100]	96.0 [90.0;100]	0.91
Postoperative SANE	77.5 [61.2;100]	90.0 [75.0;95.0]	86.0 [80.0;100]	0.787

Table 2: Patient preoperative, 2-year postoperative resilience, change in resilience and postoperative resilience groups organized by preoperative resilience grouping. Median [1<sup>st</sup> Quartile, 3<sup>rd</sup> Quartile]. No (%) Mean (SD)

	Low (n=17)	Normal (n=55)	High (n=18)	P Value
Change in IKDC				
Change in IKDC	32.4 (21.4)	33.1 (21.5)	19.8 (25.8)	0.101
Meets IKDC MCID	10 (76.9%)	48 (84.2%)	12 (70.6%)	0.406
Meets IKDC SCB	6 (46.2%)	36 (64.3%)	8 (47.1%)	0.287
Meets IKDC PASS	8 (61.5%)	46 (80.7%)	13 (76.5%)	0.289
Change in KOOS JR				
Change in KOOS JR	26.4 (23.3)	26.0 (18.5)	17.9 (18.0)	0.297
Meets KOOS JR MCID	10 (76.9%)	44 (77.2%)	12 (70.6%)	0.931
Meets KOOS JR SCB	10 (76.9%)	43 (76.8%)	11 (64.7%)	0.581
Meets KOOS JR PASS	5 (38.5%)	43 (75.4%)	13 (76.5%)	0.036*

Table 3: Changes in patient reported outcomes (IKDC and KOOS JR) from preoperative to postoperative period organized by preoperative resilience groups. Median [1<sup>st</sup> Quartile, 3<sup>rd</sup> Quartile]. No (%) Mean (SD)