Distressed Community Index as a Predictor of Urgent/Emergent Presentation and Adverse Outcomes Following Inguinal Hernia Repair

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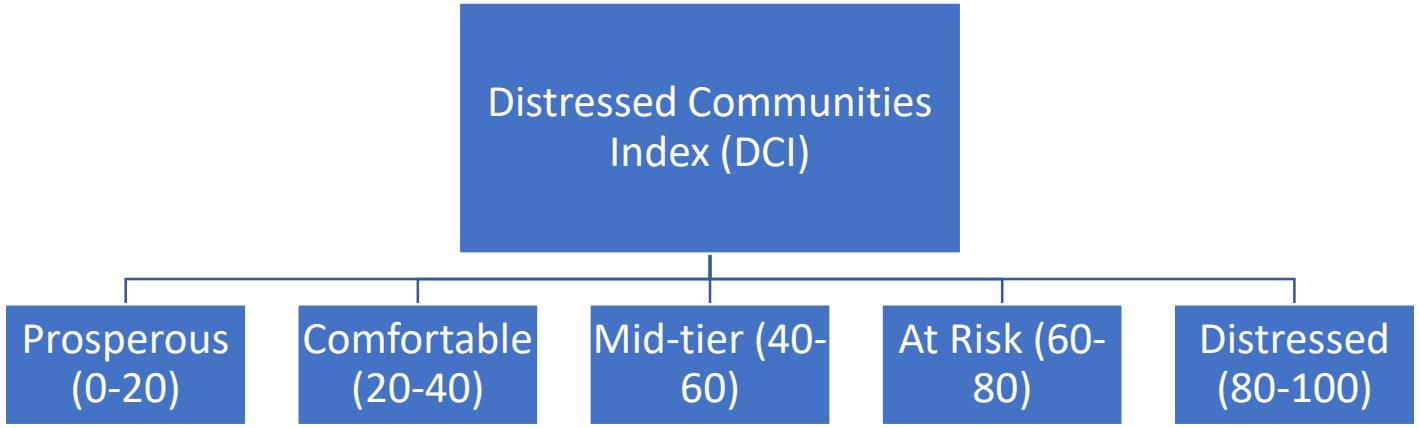
Disclosures

- I do not have any relevant financial relationships with any commercial interest that pertains to the content of my presentation.

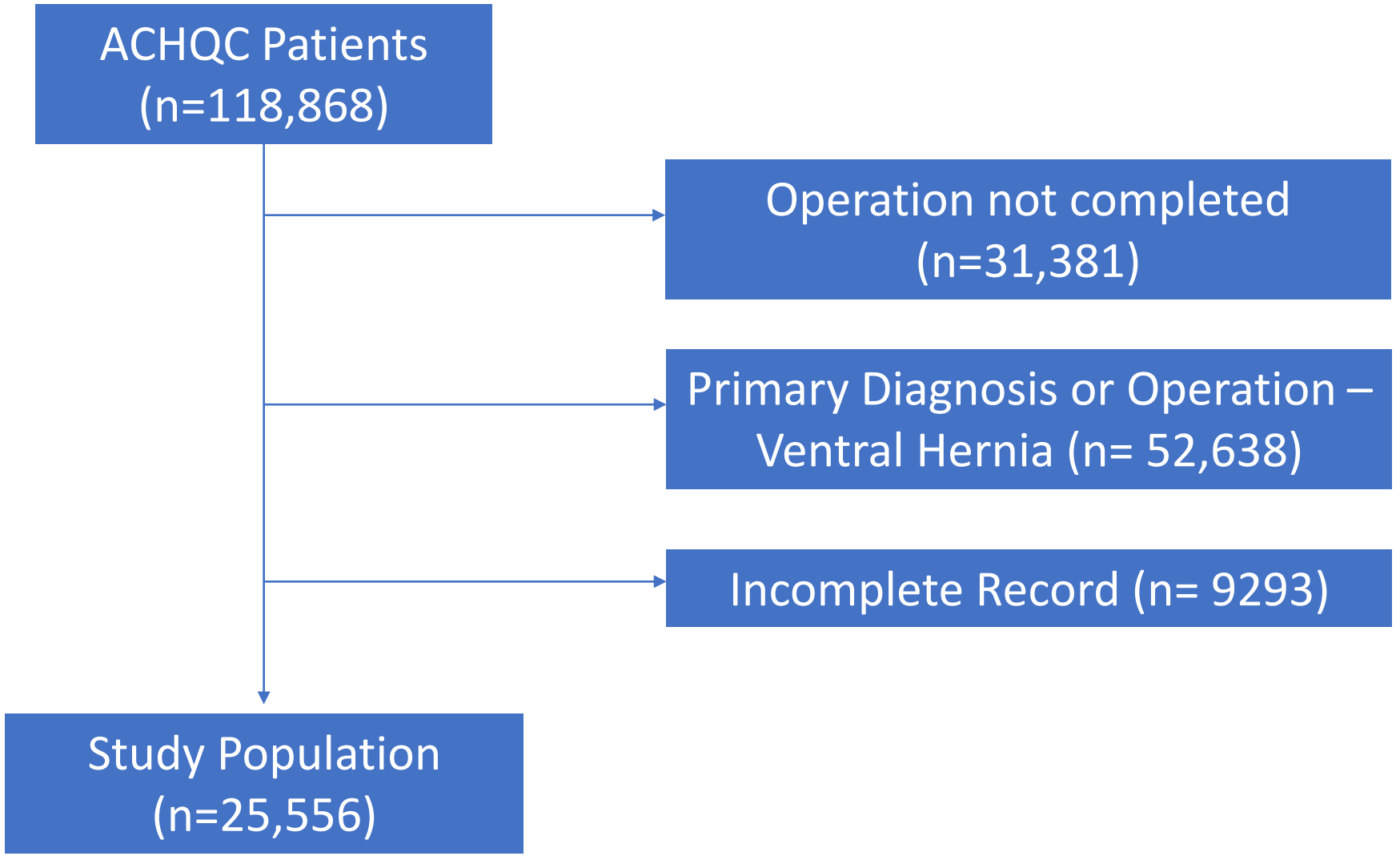
Background

- Socioeconomic disparities have been correlated with various medical conditions and outcomes
  - Lower socioeconomic status has been associated with higher risk of post-operative complications
- Inguinal hernia repair (IHR) = one of the most common general surgery operations
  - Socioeconomic factors such as race and insurance status have been shown to impact management and outcomes of IHR



- **<u>Objective:</u> To evaluate the association between socioeconomic well-being, as quantified by DCI score, and non-elective presentation and post-operative outcomes in patients undergoing IHR**

Patient Selection



Methods

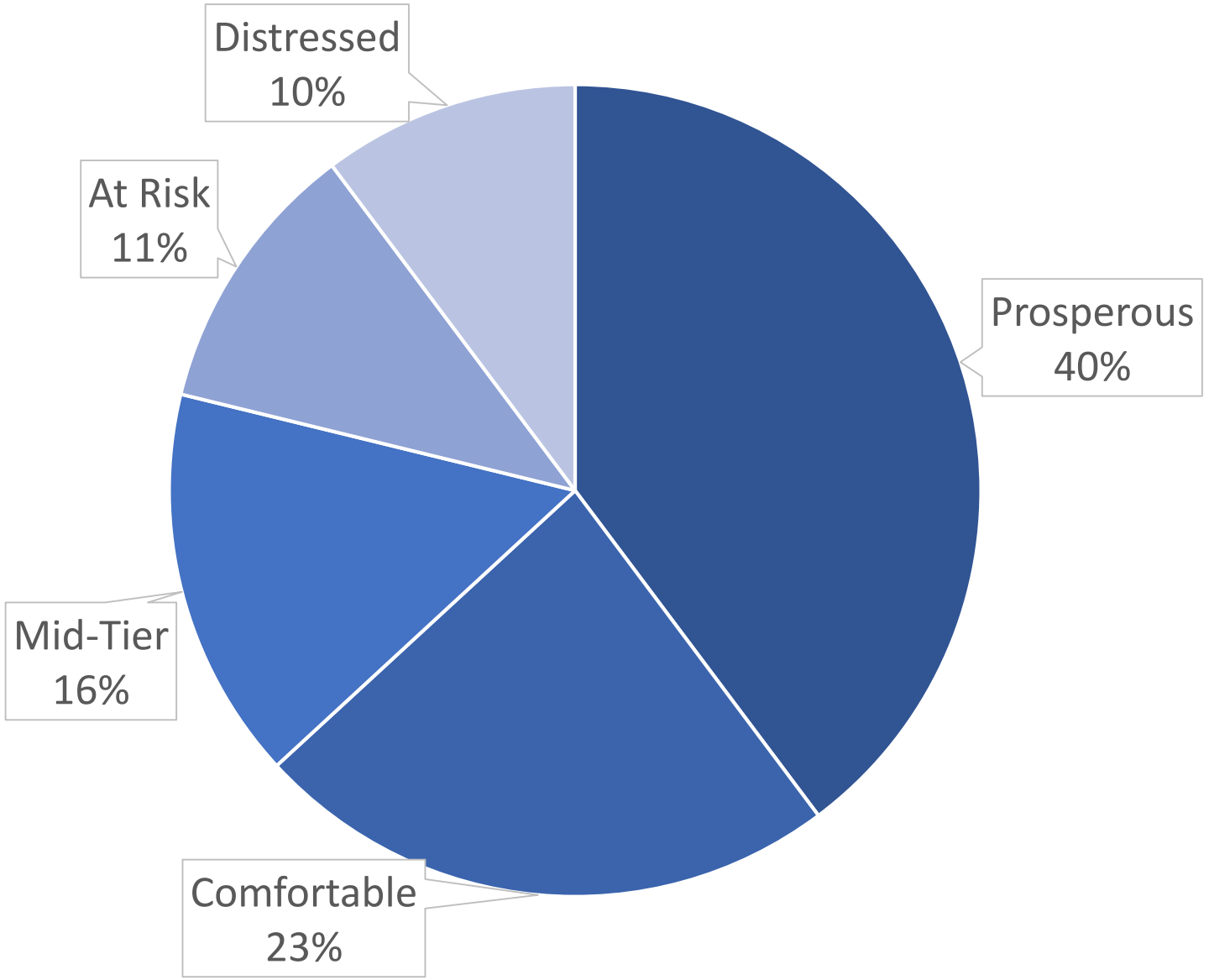
- Patients categorized into quintiles according to DCI score

- Information regarding pre-operative patient demographics and characteristics, urgency, intra-operative details, and 30-day outcomes was recorded
  - Primary Outcomes – Non-elective presentation; 30-day complications; 1-year hernia recurrence
  - Secondary Outcomes – Post-op healthcare utilization (Readmission, Reoperation, Emergency Department (ED) visits)

- Univariate analysis and multivariate logistic regression were used to evaluate the association between DCI and non-elective presentation and post-operative outcomes.

Patient Demographics

- At total of 25,556 patients were included in the analysis
- Lower DCI score was associated with younger age, female gender, white race, and independent functional status
- Higher DCI score was associated with smoking, higher ASA class, and comorbidities such as HTN, DM, dialysis requirements, COPD, and dyspnea



Operative Details

Characteristic	Prosperous (n=10,163)	Comfortable (n=5,975)	Mid-Tier (n=4,004)	At Risk (n=2,801)	Distressed (n=2,613)	p-value
Non-Elective Status	61 (0.6%)	34 (0.6%)	39 (1.0%)	31 (1.1%)	29 (1.1%)	0.002
Operative time (min)						<0.001
0 – 59	5,480 (54%)	3,134 (52%)	2,054 (51%)	1,305 (47%)	1,129 (43%)	
60 – 119	4,019 (40%)	2,382 (40%)	1,568 (39%)	1,201 (43%)	1,224 (47%)	
120 – 179	528 (5.2%)	357 (6.0%)	295 (7.4%)	234 (8.4%)	198 (7.6%)	
180 – 239	100 (1.0%)	69 (1.2%)	57 (1.4%)	44 (1.6%)	48 (1.8%)	
240 +	31 (0.3%)	29 (0.5%)	28 (0.7%)	17 (0.6%)	14 (0.5%)	
Intra-op complications	28 (0.3%)	18 (0.3%)	10 (0.3%)	15 (0.5%)	17 (0.7%)	0.012
Wound Class – Non-clean	76 (0.7%)	61 (1.0%)	42 (1.1%)	42 (1.5%)	28 (1.1%)	0.007

Post-Op Wound Complications

Characteristic	Prosperous (n=10,163)	Comfortable (n=5,975)	Mid-Tier (n=4,004)	At Risk (n=2,801)	Distressed (n=2,613)	p-value
Surgical Site Infection	13 (0.1%)	16 (0.3%)	5 (0.1%)	4 (0.1%)	9 (0.3%)	0.080
Surgical Site Occurrence	420 (4.1%)	278 (4.7%)	228 (5.7%)	210 (7.5%)	204 (7.8%)	<0.001
Seroma	294 (2.9%)	195 (3.3%)	181 (4.5%)	170 (6.1%)	169 (6.5%)	<0.001
Hematoma	102 (1.0%)	69 (1.2%)	34 (0.8%)	34 (1.2%)	24 (0.9%)	0.500
SSO or SSI requiring procedural intervention	40 (0.4%)	25 (0.4%)	20 (0.5%)	24 (0.9%)	22 (0.8%)	0.003

Other Post-Op Complications

Characteristic	Prosperous (n=10,163)	Comfortable (n=5,975)	Mid-Tier (n=4,004)	At Risk (n=2,801)	Distressed (n=2,613)	p-value
Pain	12 (0.1%)	12 (0.2%)	3 (<0.1%)	6 (0.2%)	7 (0.3%)	0.200
UTI	9 (<0.1%)	13 (0.2%)	4 (<0.1%)	4 (0.1%)	3 (0.1%)	0.300
Progressive Renal Insufficiency	0 (0%)	0 (0%)	0 (0%)	1 (<0.1%)	1 (<0.1%)	0.043
Acute Renal Failure	1 (<0.1%)	0 (0%)	0 (0%)	3 (0.1%)	0 (0%)	0.011
Resp Failure requiring Intubation	0 (0%)	0 (0%)	2 (<0.1%)	1 (<0.1%)	0 (0%)	0.045
Transfusions	7 (<0.1%)	0 (0%)	3 (<0.1%)	5 (0.2%)	2 (<0.1%)	0.021

Hernia Recurrence

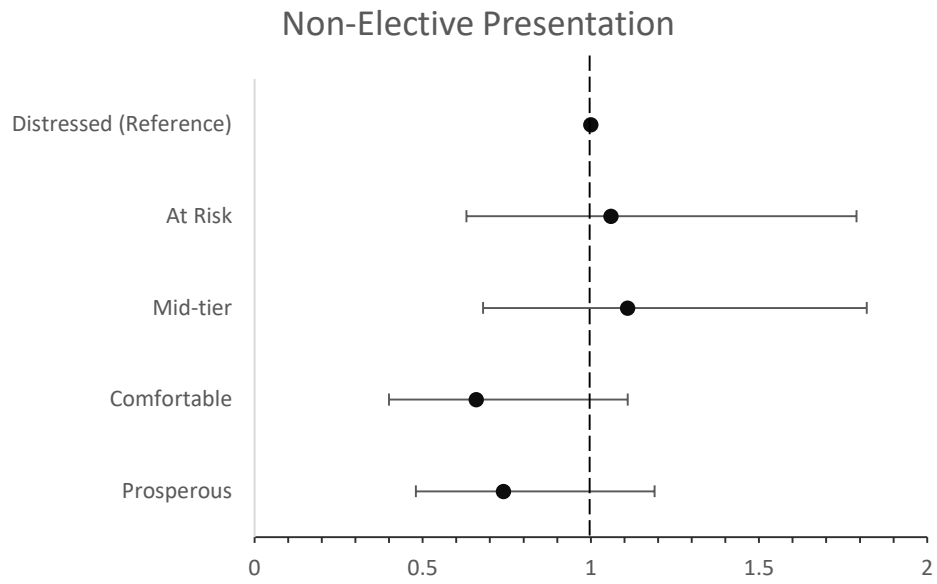
Characteristic	Prosperous (n=10,163)	Comfortable (n=5,975)	Mid-Tier (n=4,004)	At Risk (n=2,801)	Distressed (n=2,613)	p-value
30-day Recurrence	20 (0.2%)	14 (0.2%)	4 (<0.1%)	6 (0.2%)	4 (0.2%)	0.600
Recurrence symptom						0.044
Asymptomatic	3 (15%)	4 (29%)	3 (75%)	3 (50%)	0 (0%)	
Symptomatic	17 (85%)	10 (71%)	1 (25%)	3 (50%)	4 (100%)	

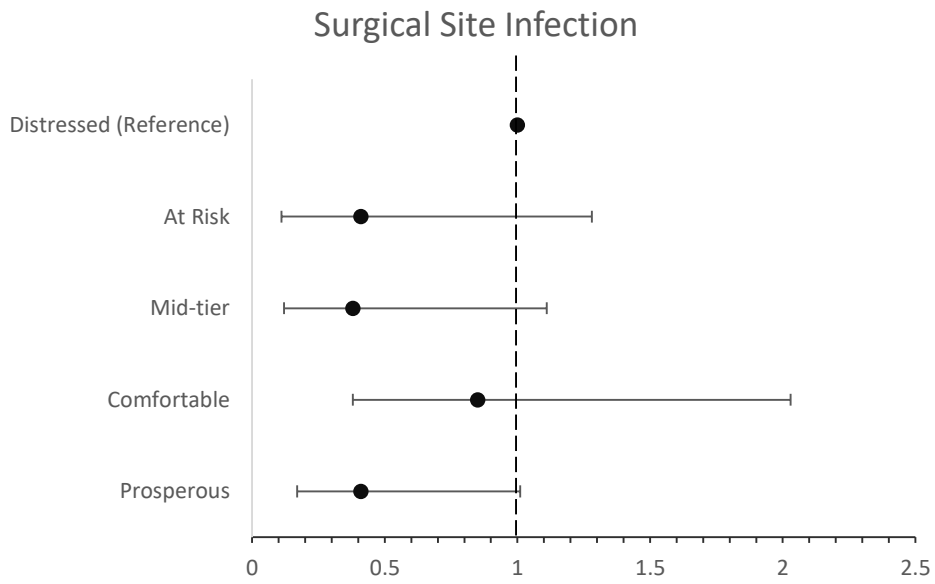
Characteristic	Prosperous (n=1966)	Comfortable (n=1149)	Mid-Tier (n=663)	At Risk (n=415)	Distressed (n=366)	p-value
1 year recurrence	95 (4.8%)	59 (5.1%)	38 (5.7%)	37 (8.9%)	21 (5.7%)	0.022

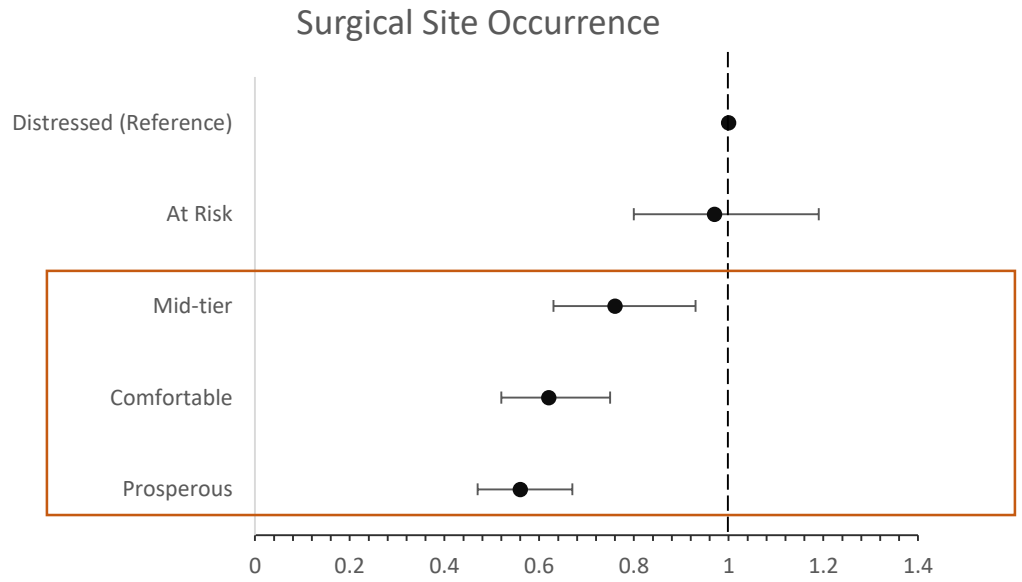
Post-op Healthcare Utilization

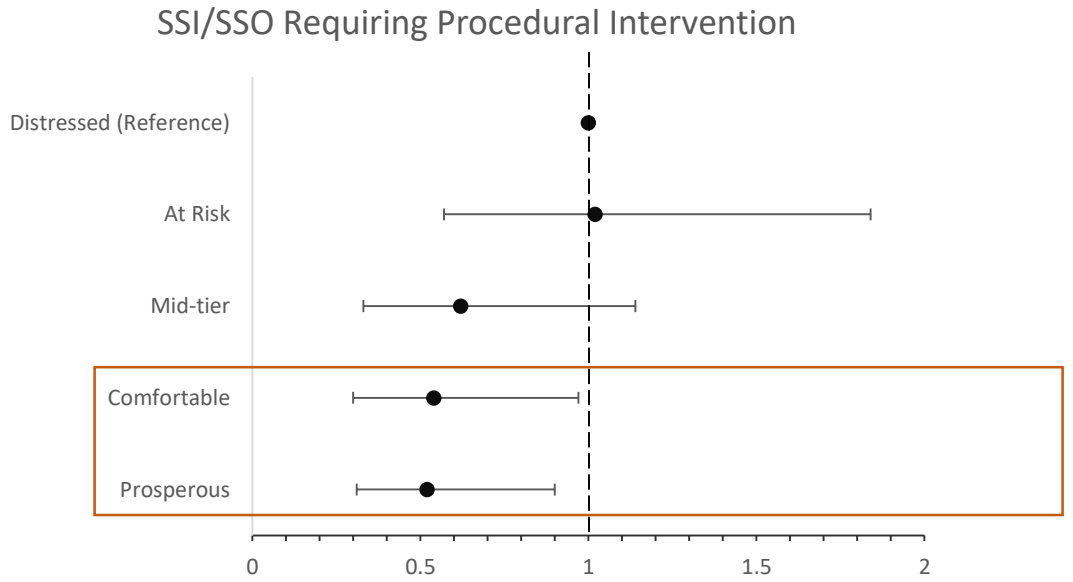
Characteristic	Prosperous (n=10,163)	Comfortable (n=5,975)	Mid-Tier (n=4,004)	At Risk (n=2,801)	Distressed (n=2,613)	p-value
Reoperation	34 (0.3%)	24 (0.4%)	12 (0.3%)	17 (0.6%)	16 (0.6%)	0.091
Readmission	62 (0.6%)	40 (0.7%)	34 (0.9%)	31 (1.1%)	30 (1.1%)	0.009
Prosthetic related complication	0 (0%)	0 (0%)	2 (<0.1%)	0 (0%)	1 (<0.1%)	0.031
Wound complication	6 (<0.1%)	3 (<0.1%)	0 (0%)	0 (0%)	5 (0.2%)	0.027
ED Visits	165 (1.6%)	124 (2.1%)	74 (1.9%)	78 (2.8%)	82 (3.1%)	<0.001

Multivariate Analysis









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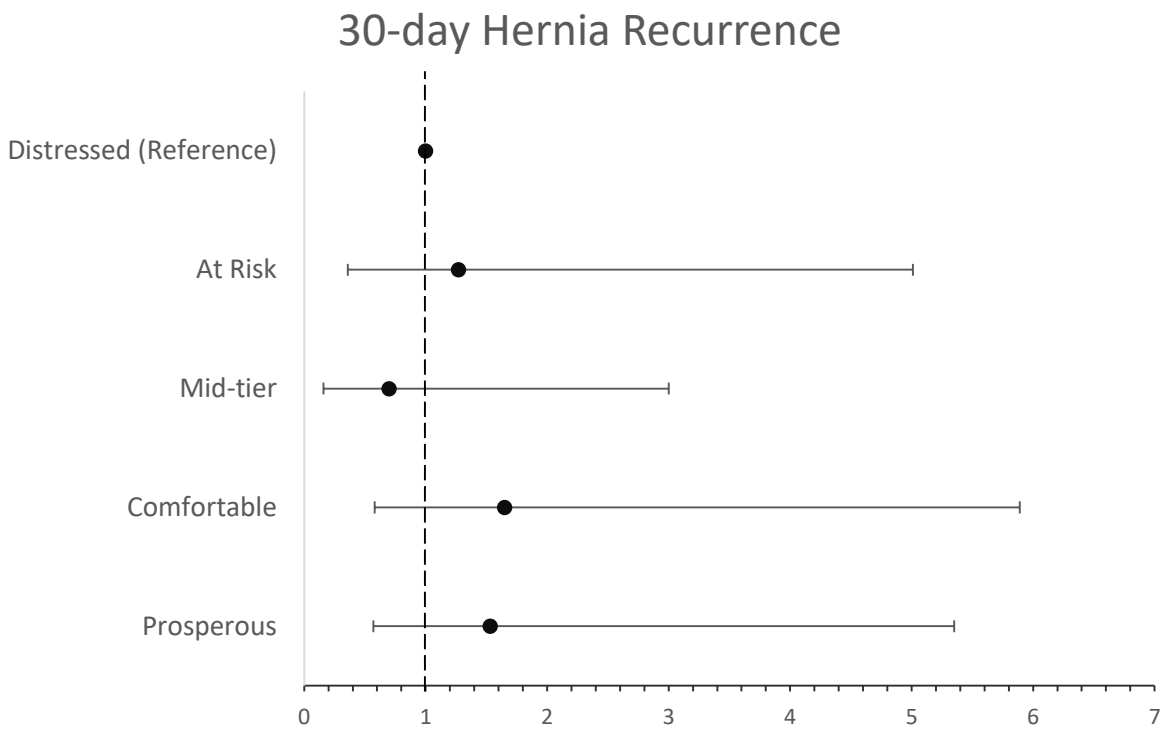

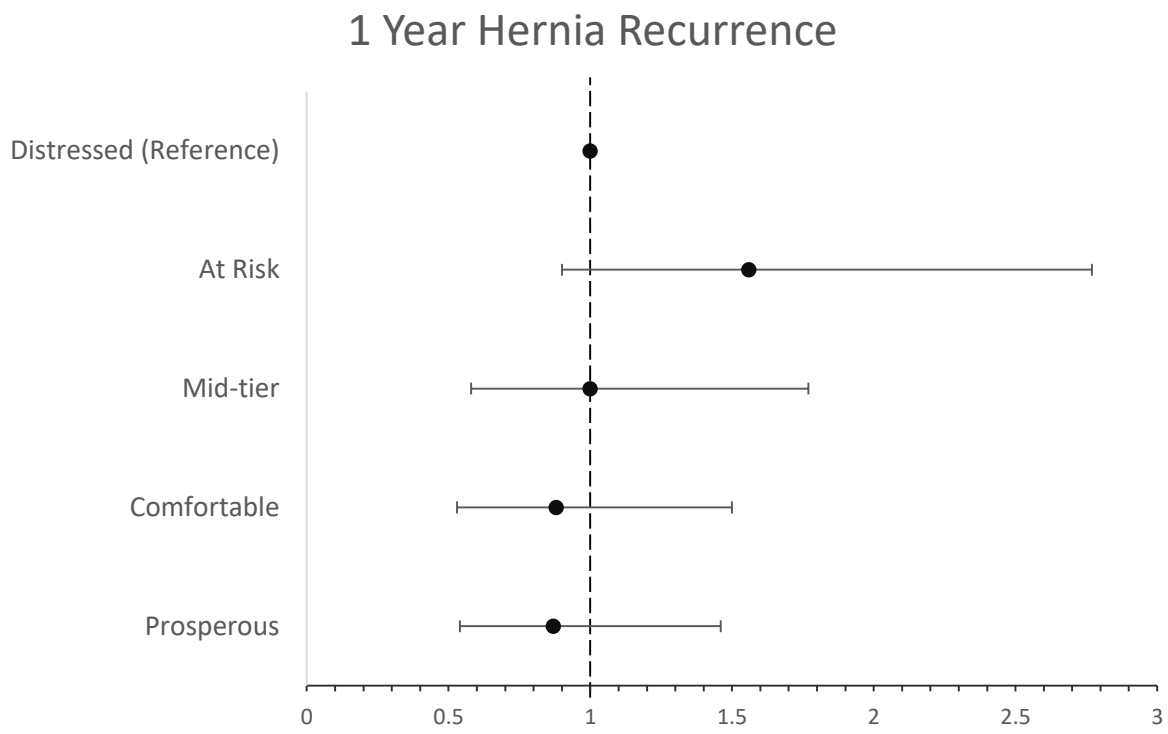

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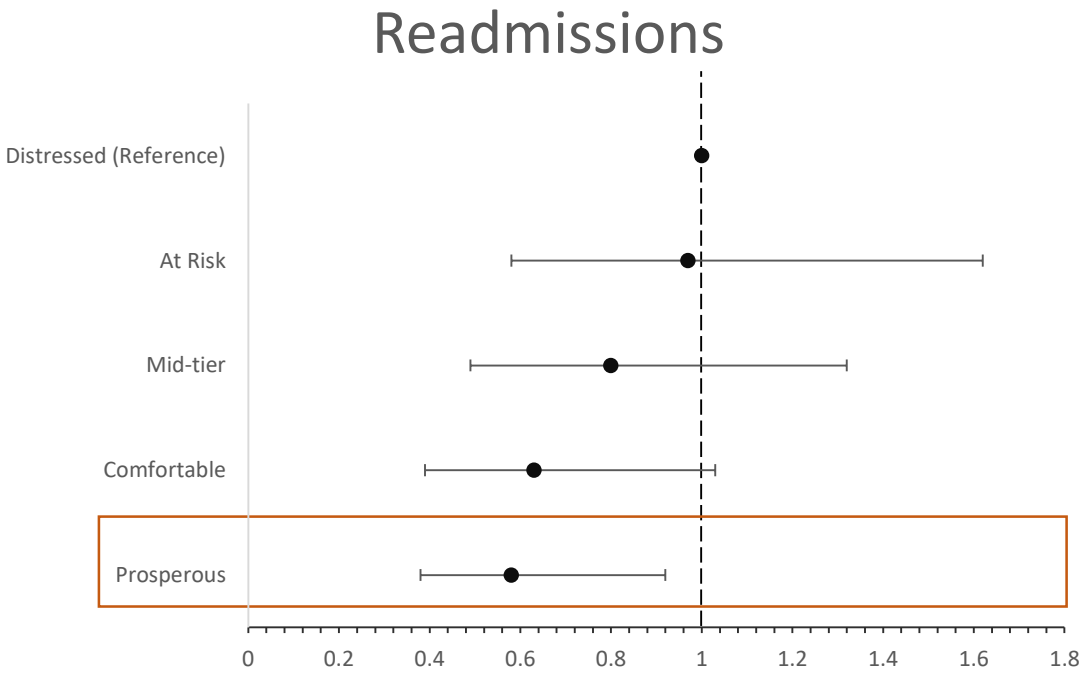

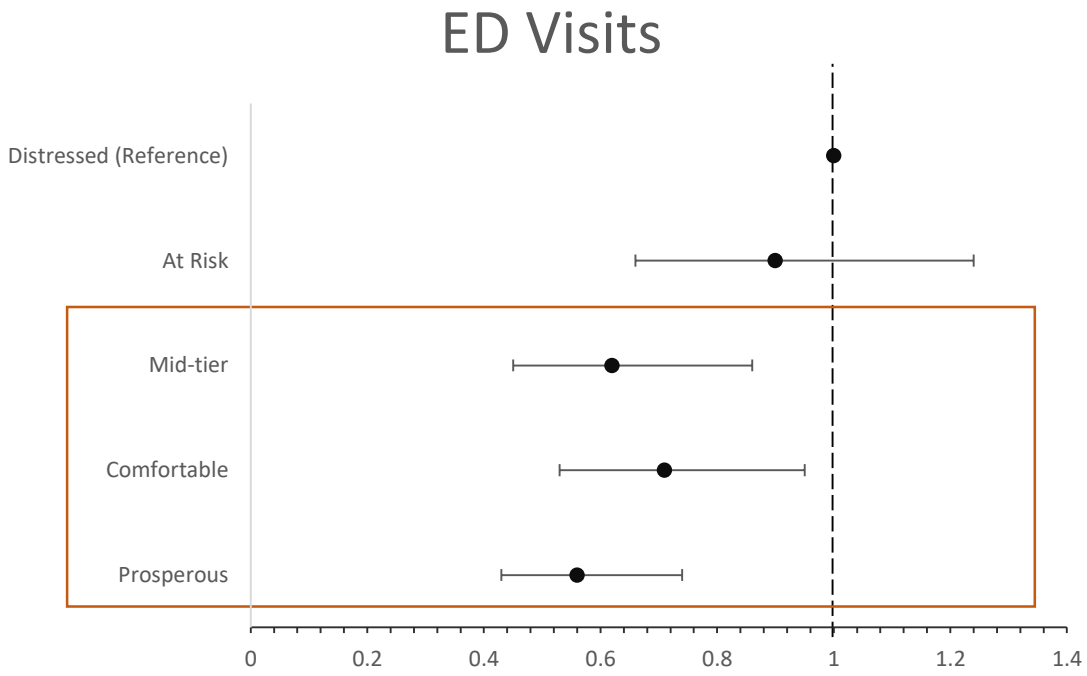

Limitations

- Retrospective nature
- Selection bias
  - Limited to patients of participating surgeons
  - Incomplete records excluded
- Variations in practice patterns among surgeons

Conclusions

- Non-elective presentation and 1-year hernia recurrence were more common in patients with higher DCI.
- Wound complications were the most common post-operative complications
  - Increasing DCI was independently associated with higher rates of surgical site occurrences and SSI/SSO requiring procedural intervention
- Compared to prosperous patients, distressed patients were more likely to be readmitted and to visit the emergency room post-operatively.