

PROMIS-29 Domains Associated with Dissatisfaction in Lumbar Spine Surgery Patients Who Improve in Pain and Functioning

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Introduction

- Most patients satisfied after lumbar spine surgery for degenerative conditions
- Patient satisfaction closely related to achieving clinical improvement in pain and disability after surgery
- Important subpopulation of patients: clinically relevant improvement but report being dissatisfied with surgery.
- Previous study on this topic:



Clinical Study

Why are patients dissatisfied after spine surgery when improvements in disability and pain are clinically meaningful?

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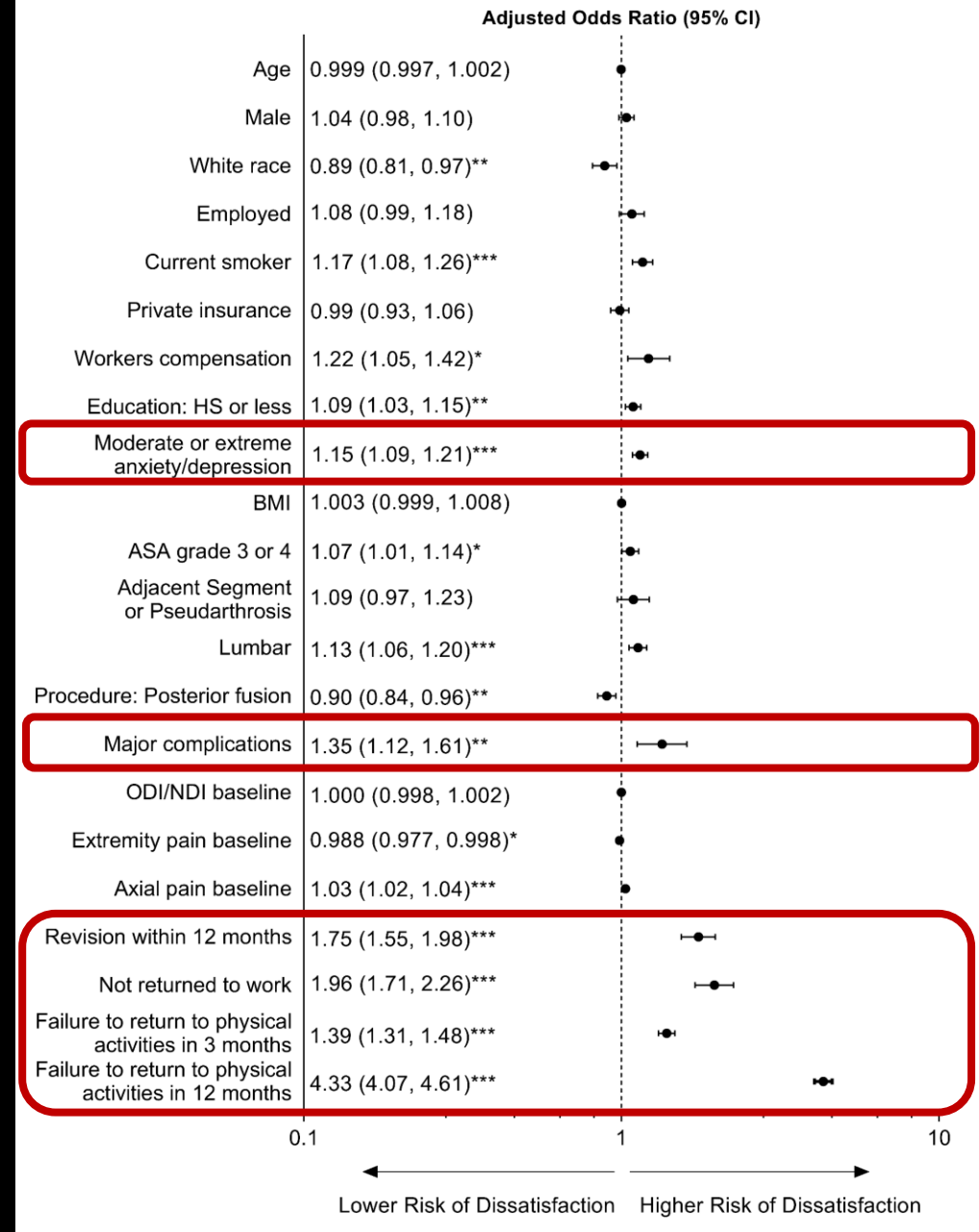
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Purpose: To examine why patients who achieve clinical improvement in disability or pain also report dissatisfaction at 1-year after spinal surgery.



Odds of dissatisfaction at 1-year for each fixed effect predictors when controlling for the random effects of site and surgeon

Psychosocial Measures

- Preoperative anxiety/depression associated with dissatisfaction
- Failure to return to physical activities was the strongest predictor of dissatisfaction
- This led us pursue the PROMIS domains of ability to participate in social roles, fatigue, depression, and anxiety as factors that could explain why some patients with improvements in pain/functioning may still be dissatisfied after surgery



Purpose

Are changes in mental health, social participation, and fatigue associated with dissatisfaction at 1-year after lumbar spinal surgery for patients who achieve clinical improvement in disability or pain.



Participants

- Retrospective analysis of data from Quality Outcomes Database (QOD)
- QOD is a prospective spine surgery registry for patients undergoing elective surgery for degenerative spine conditions
- Data collected between 2018-2019
- N=369 patients who had a successful outcome 1-year after surgery were included
 - Successful outcome defined as achieving at least 30% improvement in disability or leg pain



Participants

| | n (%) |
|----------------------------------|------------------|
| Male | 663 (55.9%) |
| Caucasian | 174 (47.2%) |
| Currently working | 146 (40%) |
| Current smoker | 22 (6%) |
| Private insurance | 176 (47.7%) |
| Education: High school or less | 144 (39%) |
| Revision | 82 (22%) |
| Adjacent segment/pseudarthrosis | 31 (8%) |
| Posterior fusion | 183 (50%) |
| Return to work | |
| No | 17 (5%) |
| Yes | 139 (38%) |
| NA | 213 (57%) |
| Major complication | 11 (3%) |
| Revision within 12 months | 15 (4%) |
| | Mean (SD) |
| Age | 62.8 (13.7) |
| BMI | 31.4 (6.6) |
| PROMIS Depression (Baseline) | 49.6 (8.7) |
| PROMIS Pain Intensity (Baseline) | 6.6 (2.1) |
| ODI (Baseline) | 44.5 (16.0) |

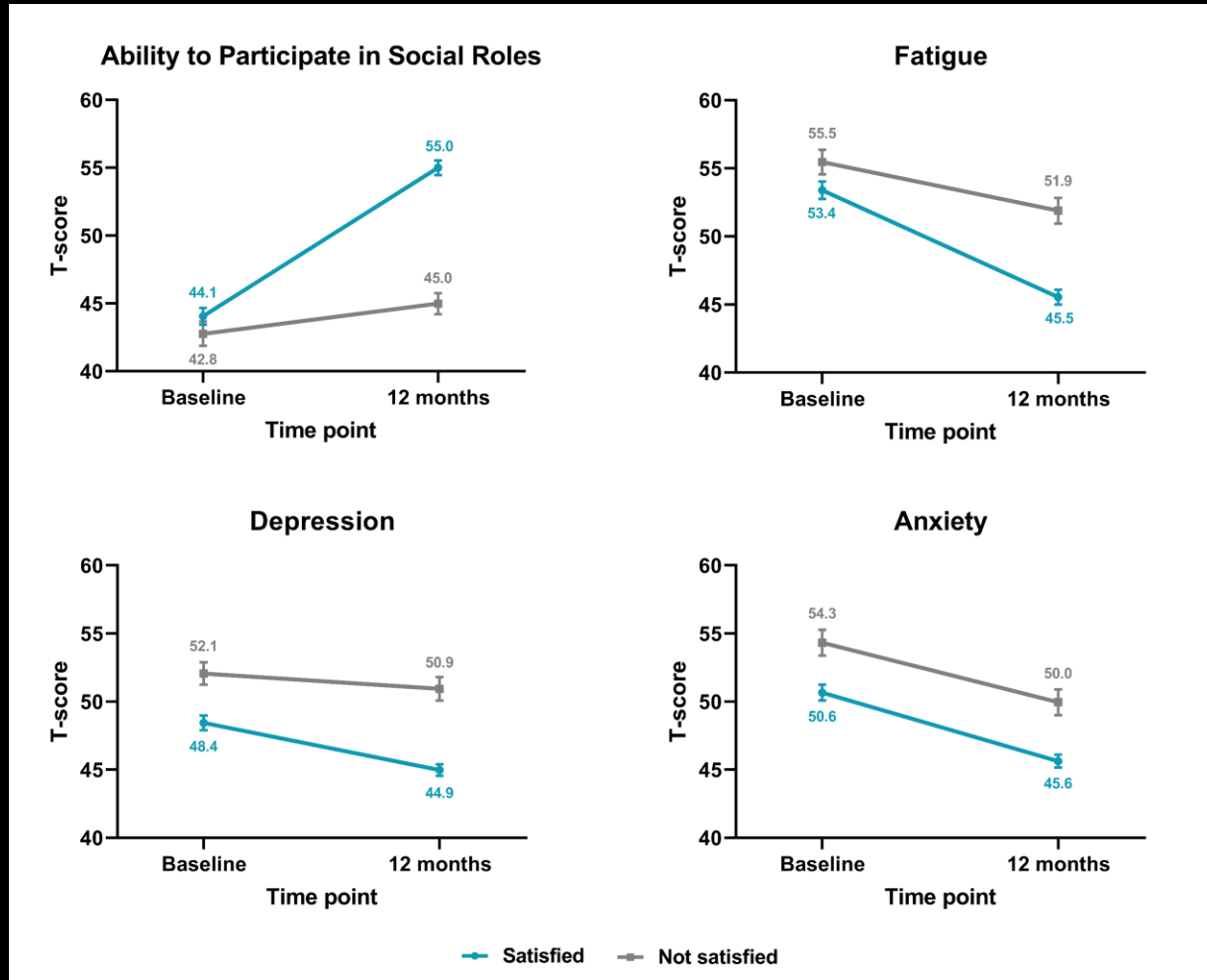


Measures

- PROMIS-29, ODI, and back/leg NRS pain ratings preoperatively and 1-year after surgery
- Patient demographic and clinical characteristics were collected from medical records and patient interviews
- Satisfaction assessed at 12-months with 1-item NASS satisfaction
 - Highly satisfied at 12-months (Surgery met my expectations): 253 (68.6%)
 - Not highly satisfied at 12-months: 116 (31.4%)
 - NASS=2: I did not improve as much as I had hoped but I would undergo the same operation for the same results.
 - NASS=3: Surgery helped but I would not undergo the same operation for the same results.
 - NASS=4: I am the same or worse as compared to before surgery.

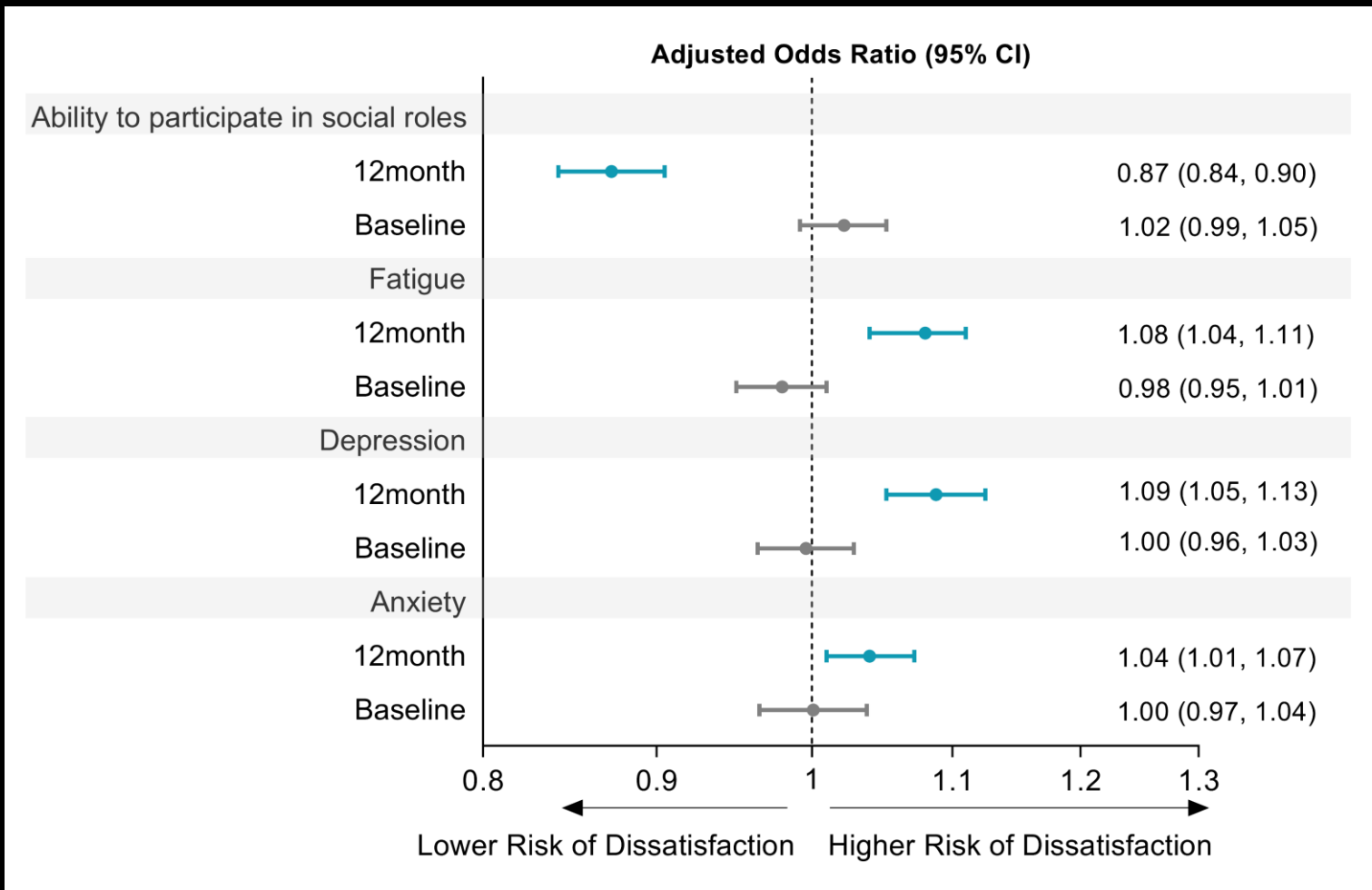


Analysis & Results



The raw means (with SE bars) are shown for each PROMIS domain at baseline and 12-months for those who were satisfied compared to not satisfied 12 months after surgery.





For each PROMIS domain, we did a logistic regression with baseline + 12-month scores

In models with only baseline scores entered predictors, only depression was significantly associated with dissatisfaction.

Covariates in all models included: race, smoker, education, primary vs. revision surgery, baseline depression, return to work, major complication (yes/no), revision within 12 months, and baseline pain intensity.

Across models, education, baseline depression, and return to work were significant covariates.



Discussion

- 12-month PROMIS scores were significantly associated with dissatisfaction when controlling for indicating that patients with who had less improvement in social activities, fatigue, depression, and anxiety tended to report being dissatisfied even after having a clinically relevant improvement in disability/pain.
- Preoperatively, only the depression PROMIS scores were associated with dissatisfaction at 1-year.
- The results indicate that improvements in social and mental health factors play a role in patient satisfaction after lumbar spine surgery along with improvements in disability and pain.



Limitations

- Larger sample would allow us to control for more covariates
- Random effects of surgeon and site could not be assessed in this data due to small sample. However, our previous work showed only a small explanatory effect of these variables
- Cannot infer causation from this analysis



Conclusions/Implications

- The results indicate that improvements in social and mental health factors play a role in patient satisfaction after lumbar spine surgery along with improvements in disability and pain.
- Multidisciplinary treatment programs, such as those focused on functional restoration, have shown promise in addressing both physical and mental health complaints in patients with back pain
- These types of programs may address psychosocial components of the recovery process that are important to satisfaction in a spine surgery population



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