

Which Psychosocial PROMIS Measures are Correlated to Physical Function in Patients with Knee Osteoarthritis?

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Introduction

- Lifetime risk of knee osteoarthritis in the US is predicted at 41-45% (annual economic burden \$27 B)¹
- Usual symptoms and function include knee pain and physical limitations (i.e. walking).²
- Psychosocial factors interfere with coping with pain and loss of physical function.³
- Psychosocial factors appear important for self-management and maintenance of a healthy lifestyle.
- A biopsychosocial profile of CAT PROMIS measures capture a negative (Anxiety and Depression) and positive (Self-Efficacy of Symptom Management) mental health symptoms as well as a social health participation (Ability to Participate in Social Roles).

Purpose

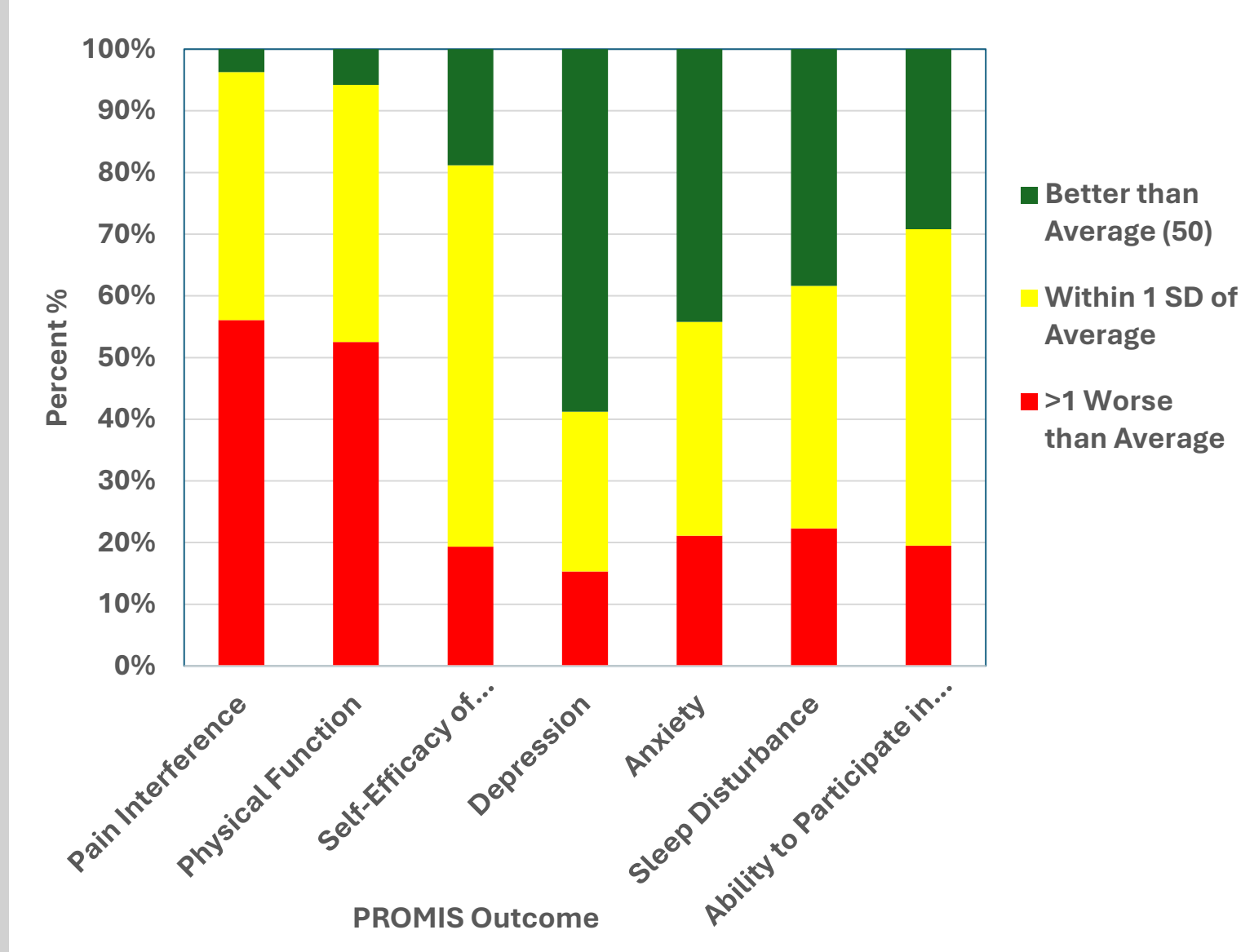
The purpose of this analysis was to 1) document the prevalence of PROMIS symptoms and function across a PROMIS biopsychosocial measures, and 2) evaluate the importance of psychosocial variables in predicting physical function and pain interference.

Methods

Retrospective data from PROMIS outcomes collected near the patient's physical therapy initial evaluations from 2016 to 2024 with specific knee OA ICD10 codes.

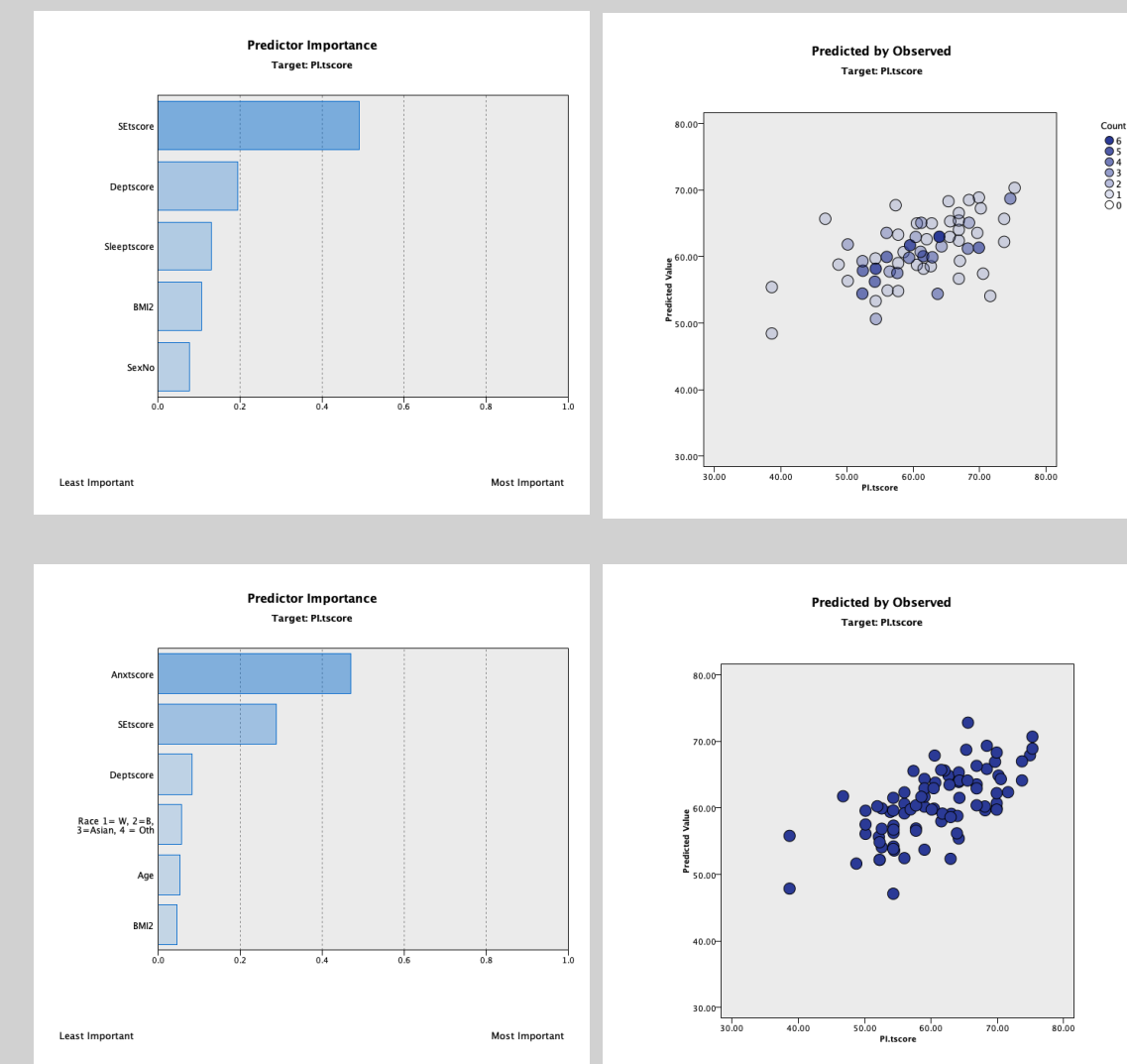
| | Sample (n) | Min | Max | Mean | SD |
|--|------------|------|-------|------|------|
| Age | 505 | 18.8 | 74.5 | 57.2 | 11.6 |
| Height (m) | 502 | 1.45 | 1.96 | 1.68 | 0.10 |
| Mass (kg) | 503 | 44.6 | 209.1 | 94.0 | 22.2 |
| BMI | 502 | 18.2 | 68.1 | 33.3 | 7.6 |
| PROMIS Scores | | | | | |
| Physical Function (PF) | 499 | 19.1 | 63.9 | 39.1 | 7.0 |
| Pain Interference (PI) | 482 | 38.6 | 82.8 | 60.6 | 7.3 |
| Depression | 379 | 34.2 | 76.5 | 49.1 | 9.8 |
| Anxiety | 95 | 32.9 | 72.9 | 51.3 | 10.6 |
| Sleep Disturbance | 224 | 26.4 | 81.2 | 52.3 | 9.4 |
| Self-Efficacy of Symptom Management | 207 | 22.7 | 68.7 | 45.5 | 7.6 |
| Ability to Participate in Social Roles | 113 | 29.4 | 67.5 | 46.6 | 8.4 |

Results



Prevalence of major (>1 SD worse than average), minor (within 1 SD of average) and better than average PROMIS outcome scores in patients near their initial evaluation in physical therapy. The Ability to Participate in Social Roles showed strongest correlation with PF (rho=0.70, p<0.01) and PI (rho= -0.77, p<0.01).

Importance* of Mental Health Outcomes

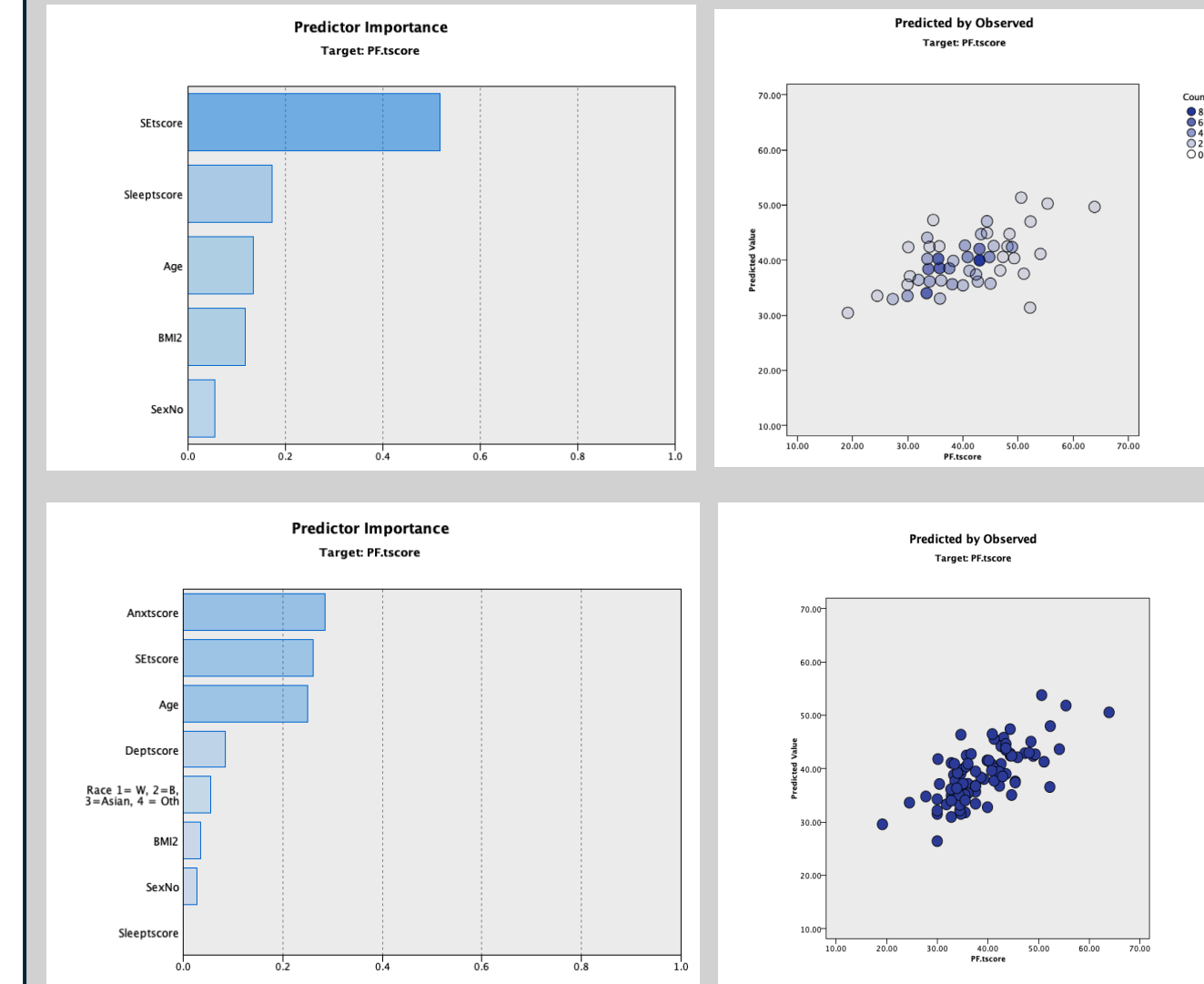


*Importance is calculated by normalizing the standardized coefficients from the regression equation.

Importance (Left) of variables retained in the model (Anxiety excluded). The correlation of the predicted score with the actual PROMIS PI score (Right). (n=115, r²=0.31, p<0.01) Significant Importance values: SE=0.49, Dep=0.20

Importance (Left) of variables retained in the model (Anxiety included). The correlation of the predicted score with the actual PROMIS PI score (Right). (n=87, r²=0.39, p<0.01). Significant Importance values: Anxiety = 0.47, SE=0.29

Importance of Mental Health Outcomes (Cont.)



Importance (Left) of variables retained in the model (Anxiety excluded). The correlation of the predicted score with the actual PROMIS PF score (Right). (n=115, r²=0.31, p<0.01) Significant Importance values: SE=0.52, Sleep Disturbance = 0.17, Age = 0.14, BMI = 0.12

Importance (Left) of variables retained in the model (Anxiety included). The correlation of the predicted score with the actual PROMIS PF score (Right). (n=87, r²=0.42, p<0.01) Significant Importance values: Anxiety = 0.31, SE=0.26, Age=0.24, Depression = 0.08

Discussion/Conclusions

- There was a high prevalence of major and minor symptoms and function associated with self-efficacy, anxiety, sleep disturbance and ability to participate in social roles.
- The least prevalent psychosocial symptom was depression.
- When subsets that included all measures except anxiety (n=115) and all measures (n=87) analyzed using the Automatic Regression feature in SPSS, **Self-Efficacy and Anxiety** were the deemed more important in determining PI and PF than other measures.
- Ability to Participate in Social Roles** showed the strongest correlation with PF and PI.

Clinical Significance

The PROMIS measures were effective at detecting psychosocial symptoms and function in patients with knee OA. This analysis supports the mounting evidence showing the importance of addressing psychosocial symptoms and function to improve coping strategies in patients with knee OA.

References

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