Reporting Patient Satisfaction with the Outcome of Orthopedic Surgery: Threshold-Based Definitions May be an Unreliable Estimate of Patient Opinion

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INTRODUCTION:
The Patient Acceptable Symptom State (PASS) is a widely used clinically relevant threshold for estimating patient satisfaction with patient-reported outcomes (PROs). The purpose of this study is to assess the accuracy of PASS thresholds relative to patient satisfaction in patients undergoing hip arthroscopy and to identify risk factors for PASS achievement misalignment when compared to a patient's actual satisfaction with surgery.
METHODS:
Patients were included within the study if they had preoperative and minimum 2-year follow-up with completed PROs following primary hip arthroscopy. Receiver Operating Characteristic curves were utilized to establish PASS thresholds for each PRO. Model integrity was evaluated through the Area Under the Curve (AUC). A false-negative PASS was defined as failing the PASS threshold despite reporting satisfaction with surgery, whereas false positive PASS was defined as meeting the PASS threshold despite not being satisfied with surgery. Multivariate regression was performed to identify risk factors associated with inaccurate PASS determination.
RESULTS:
497 patients were included within the study. AUC ranged from 0.85 to 0.89, specificity ranged from 0.75 to 0.84, and sensitivity ranged from 0.79 to 0.89 for each PRO. The positive predictive value for PASS achievement ranged from 0.94 to 0.96 while the negative predictive value ranged from 0.46 to 0.59 for each PRO. 31.8% of patients were found to have PASS misalignment for at least one PRO, with 26.0% exhibiting false-negative PASS and 5.8% exhibiting false-positive PASS. Lower preoperative activity level was among the strongest predictors for a false-negative PASS ($p<0.01$ for all PROs on multivariate analysis).
DISCUSSION AND CONCLUSION:
Inaccurate PASS rates were substantial despite excellent construct validity when defining PASS thresholds. While PASS PPV was high for all PROs, NPV was significantly lower, leading to high inaccuracy when predicting unsatisfaction (false-negative PASS). Our study demonstrates that PASS can be an unreliable predictor of patient satisfaction following orthopedic surgery due to a complex interplay of factors including preoperative disability, pre- and post-operative activity, and concomitant pathology such as subspine impingement.