

Hospital Experience Scores Poorly Correlate with Patient-Reported Outcomes after Elective Spine Surgery

Yunting Melissa Tang¹, Audrey Yuen Chang, Michael Joseph Calcaterra, Samuel Adida, Emily Nicole Lau, Jonathan Forrest Dalton, Joon Yung Lee², Jeremy Dewitt Shaw³, Mitchell Fourman⁴

¹Orthopaedic Surgery, University of Pittsburgh, ²University of Pittsburgh Medical Center, ³University of Pittsburgh Department of Orthopaedic, ⁴Hospital for Special Surgery

INTRODUCTION:

Patient experience is an important component of health care quality. Patient experience surveys, including the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score, have been used to justify changes in Medicare reimbursement. ^{1,2} Despite the increasing impact of these metrics, the factors that influence patient experience scores are not fully understood. The purpose of this study was to correlate hospital experience scores as measured by HCAHPS after cervical and thoracolumbar spine surgery with postoperative Patient-Reported Outcome Measures (PROMs) up to 5-years after surgery. The hypothesis was that HCAHPS scores would NOT correlate with postoperative PROMs across multiple time periods.

METHODS: A retrospective analysis at a large tertiary referral center was performed with IRB approval. Adults who underwent elective inpatient spine surgery by one of three fellowship-trained spine surgeons from January 2010 to December 2019 were included. Postoperative PROM data routinely collected by our institution included the Neck Disability Index (NDI), Oswestry Disability Index (ODI), Patient-Reported Outcomes Measurement Information System Global-10 Mental/Physical Health scores (PROMIS-10 Mental/Physical), and Patient Acceptable Symptom State Neck/Back (PASS). Patients completed the HCAHPS hospital experience survey via text message within 24-48 hours of discharge, in which they rated the hospital on a Likert scale from 0 to 10, with 0 the “worst hospital possible” and 10 the “best hospital possible.” Analysis split patients into cervical and thoracolumbar surgery groups, which reflects differences in the PROMs administered to these patients. Partial correlations adjusting for age were used to measure the relationship between postoperative PROMs and HCAHPS hospital experience scores. Linear regression tests were used to evaluate correlations between hospital experience scores and specific PROMs 6 months, 2 years, and 5 years after surgery. Significance was set at $p < 0.05$ for all tests.

RESULTS:

A total of 397 patients with recorded PROMs were included (Tables 1 and 2). For cervical patients, NDI at 6 months ($r = 0.051$; $p = 0.033$) and PROMIS-10 Physical and Mental scores 6 months (Physical $r = 0.059$; $p = 0.043$; Mental $r = 0.176$; $p < 0.001$), and 5 years (Physical $r = 0.059$, $p = 0.04$; Mental $r = 0.115$, $p = 0.038$) had small but significant correlations with hospital experience scores (Table 1). However, this correlation did not exist 2-years after surgery. No significant relationship was observed between HCAHPS and any postoperative PROM following thoracolumbar surgery (Table 2).

DISCUSSION AND CONCLUSION:

While emphasized in current reimbursement models as an indicator of the quality of hospital care, HCAHPS metrics have an uncertain connection to perceived quality. In the present study, examining the association between HCAHPS and PROMs, there was no relationship following thoracolumbar surgery. Following cervical surgery, HCAHPS showed a significant but small correlation at 6-months and 5-years, however, not at 2-years postoperatively. These findings likely represent small sample size and ascertainment bias rather than an independent relationship between HCAHPS and PROMs. These findings suggest that hospital experience scores poorly correlate with patient-reported outcomes up to 5 years following elective spine surgery.

REFERENCES: 1) Centers for Medicare and Medicaid Services. The Hospital Value Based Purchasing (VBP) Program. December 1, 2021. 2) CMS Hospital Value-Based Purchasing Program Results for Fiscal Year 2021 [press release].

CMS.gov: Centers for Medicare and Medicaid Services; 2021.

| Patient Reported Outcome Measure (PROM) | Partial Correlation Co-Efficient (PROM vs Hospital Experience Score) | P-Value |
|---|--|-------------------------|
| Neck Disability Index (NDI) | 6 mo (n= 71): 0.05 | 6 mo: 0.03* |
| | 2y (n= 35): 0.04 | 2y: 0.1 |
| | 5y (n= 16): -0.02 | 5y: 0.4 |
| Patient-Reported Outcome Measurement Information System 10- P (PROMIS10-Physical) | 6 mo (n= 54): 0.06 | 6 mo: 0.04* |
| | 2y (n= 38): 0.01 | 2y: 0.2 |
| | 5y (n= 30): 0.1 | 5y: 0.04* |
| Patient-Reported Outcome Measurement Information System 10- M (PROMIS10-Mental) | 6 mo (n= 54): 0.2 | 6 mo: <0.001* |
| | 2y (n= 38): 0.05 | 2y: 0.1 |
| | 5y (n= 30): 0.1 | 5y: 0.04* |
| Patient Acceptable Symptom State (PASS) | 6 mo (n= 54): -0.001 | 6 mo: 0.3 |
| | 2y (n= 26): -0.04 | 2y: 0.9 |
| | 5y (n= 15): -0.02 | 5y: 0.4 |

Table 1. Correlation of cervical PROM and Hospital Experience Scores

| Patient Reported Outcome Measure (PROM) | Partial Correlation Co-Efficient (PROM vs Hospital Experience Score) | P-Value |
|---|--|-----------|
| Oswestry Disability Index (ODI) | 6 mo (n= 167): 0.005 | 6 mo: 0.2 |
| | 2y (n= 106): -0.001 | 2y: 0.3 |
| | 5y (n= 41): -0.02 | 5y: 0.6 |
| Patient-Reported Outcome Measurement Information System 10- P (PROMIS10-Physical) | 6 mo (n= 116): 0.006 | 6 mo: 0.2 |
| | 2y (n= 103): -0.007 | 2y: 0.6 |
| | 5y (n= 61): -0.01 | 5y: 0.5 |
| Patient-Reported Outcome Measurement Information System 10- M (PROMIS10-Mental) | 6 mo (n= 116): 0.01 | 6 mo: 0.3 |
| | 2y (n= 103): -0.006 | 2y: 0.6 |
| | 5y (n= 61): -0.02 | 5y: 0.4 |
| Patient Acceptable Symptom State (PASS) | 6 mo (n= 112): -0.009 | 6 mo: 0.8 |
| | 2y (n= 82): 0.000 | 2y: 0.3 |
| | 5y (n= 33): -0.01 | 5y: 0.5 |

Table 2. Correlation of thoracic and lumbar PROM and Hospital Experience Scores