Improved Patient Reported Outcome Collection through Integrated Online Patient Portals

Summary Sentence: Integration of electronic rehabilitative applications within an orthopaedic practice significantly improves survey completion rates better aligning healthcare organizations with meaningful use requirements.

Introduction: For patients undergoing total joint arthroplasty (TJA), one of the most effective standardized methods of evaluating outcomes is through the utilization of validated patient reported outcomes (PROs) surveys. PROs have played a vital role in guiding research and validating TJA as a procedure to improve quality of life, alleviate pain, and restore function. With the growing demand for TJA and increasing constraints being placed on healthcare providers, new more efficient means of PRO survey collection are required. Recent advances in telemedicine have promoted the use of online patient portals and mobile applications with promise to improve completion rates. Additionally, electronic patient rehabilitation applications (EPRA) embedded within these portals aim to improve patient adherence and proper application of at home therapy, minimizing societal costs and improving outcomes. Here we show preliminary evidence in favor of online patient portals and EPRA with regards to PRO completion.

Methods: All patients between the ages of 18 to 90 undergoing a unilateral THA at our institution were retrospectively included for this study between October 2016 and March 2017. Patients undergoing bilateral THA or had insufficient follow-up since surgery were excluded from our analyses. Patient charts were reviewed and divided into two separate groups based on PRO score collection methods: 1) online patient portal with EPRA versus 2) standard emails and/or clinic visits without EPRA.

PRO surveys were administered to both groups pre- and post- operatively at baseline and 12±2 weeks, respectively. Patients who completed their PRO surveys by standard means completed the Hip Disability and Osteoarthritis Outcome Score (HOOS) survey, while patients who completed PRO surveys via the online patient portal completed the HOOS-JR survey. Completion rates of surveys were compared using a Fisher's exact test. Pre- and post- operative scores were compared using a paired Student's t-test.

Results: 257 patient charts were reviewed and included in this study. 179 patients completed PRO surveys by standard emails or clinic visits, and 78 patients were enrolled through the online patient portal combined with EPRA. Of the 179 patients completing PRO surveys through the standard pathway only 17 (9.5%) completed both baseline and 12-week PRO surveys . Patients enrolled in the EPRA group demonstrated a significantly higher completion rate of 53.85% ($n=42$; $p<0.0001$; Fig. 1). Both standard collection and online patient portal methods showed significant improvements in HOOS-JR (Fig. 2) and HOOS (Fig. 3) scores compared to pre-operative scores.

Conclusion: We demonstrate that the integration of validated EPRA platforms into clinical practice may improve survey completion rates. Our results indicate that patients may favor EPRAs, which are easy to navigate and help guide patients through the perioperative course. However, EPRAs may not be ideal for all patients, particularly those who are not technologically

inclined. Future studies are needed to substantiate our findings and to better define the role of EPRA platforms in the perioperative setting.

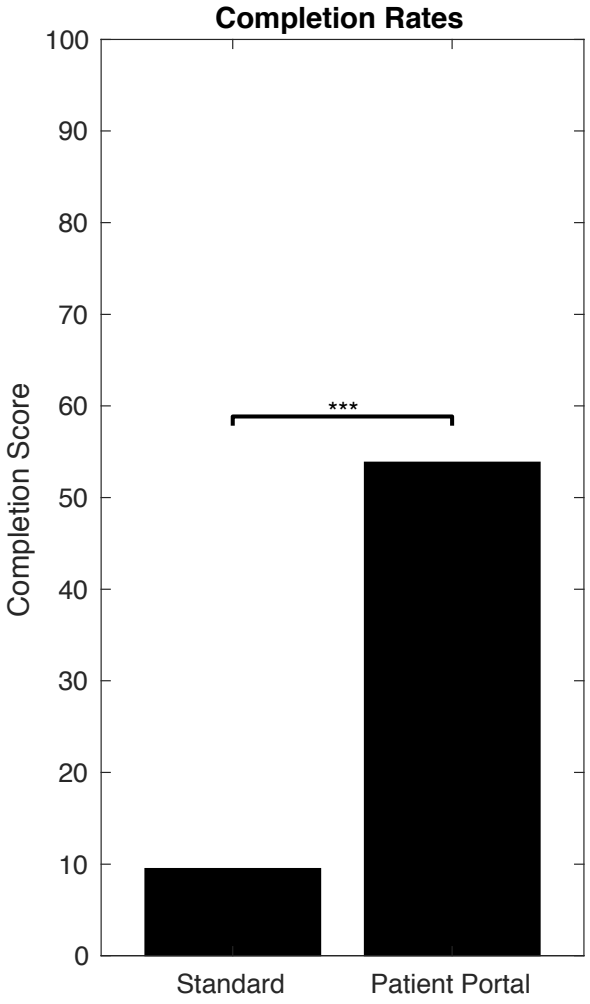

Figure 1: Completion rates of PRO surveys. Online patient portal showed a completion rate of 53.85. Standard PRO survey collection methods demonstrated 9.50% completion rate. $p<0.05$ = *, $p<0.01$ = **, $p<0.001$=***

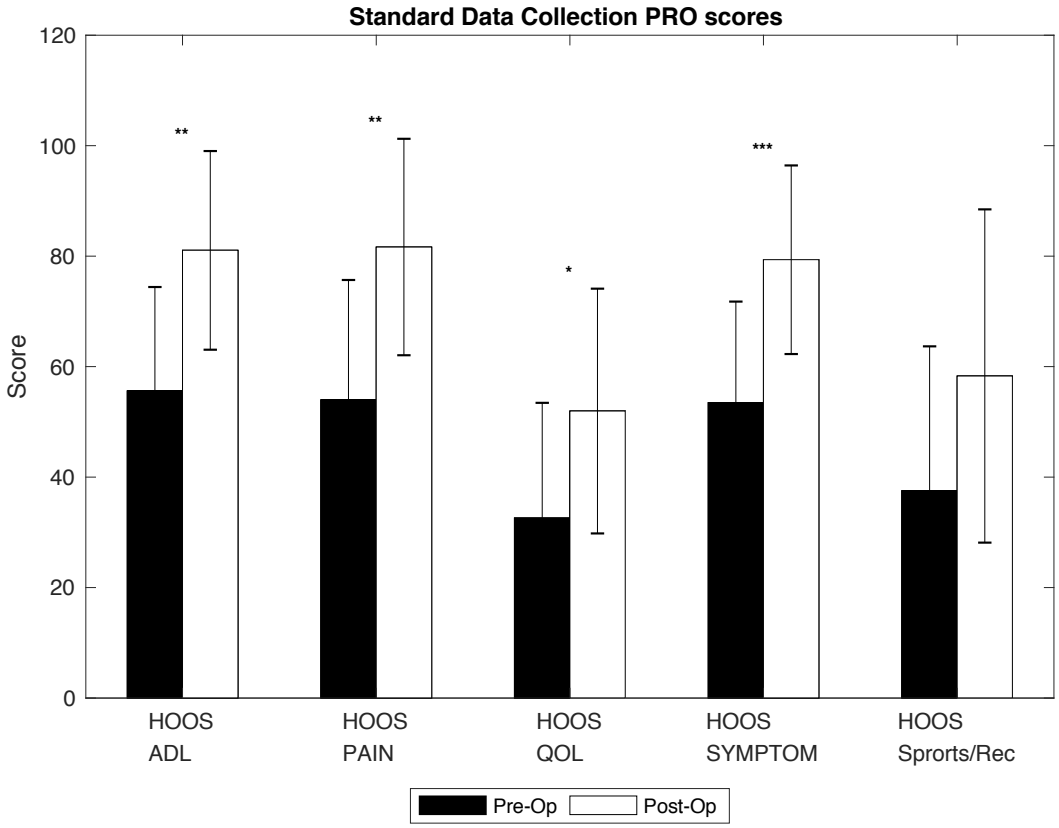

Figure 2: Comparison of HOOS scores from patients who completed both pre- and postoperative survey in office or by email. Error bars represent 1 standard deviation. $p<0.05$ = *, $p<0.01$ = **, $p<0.001$=***

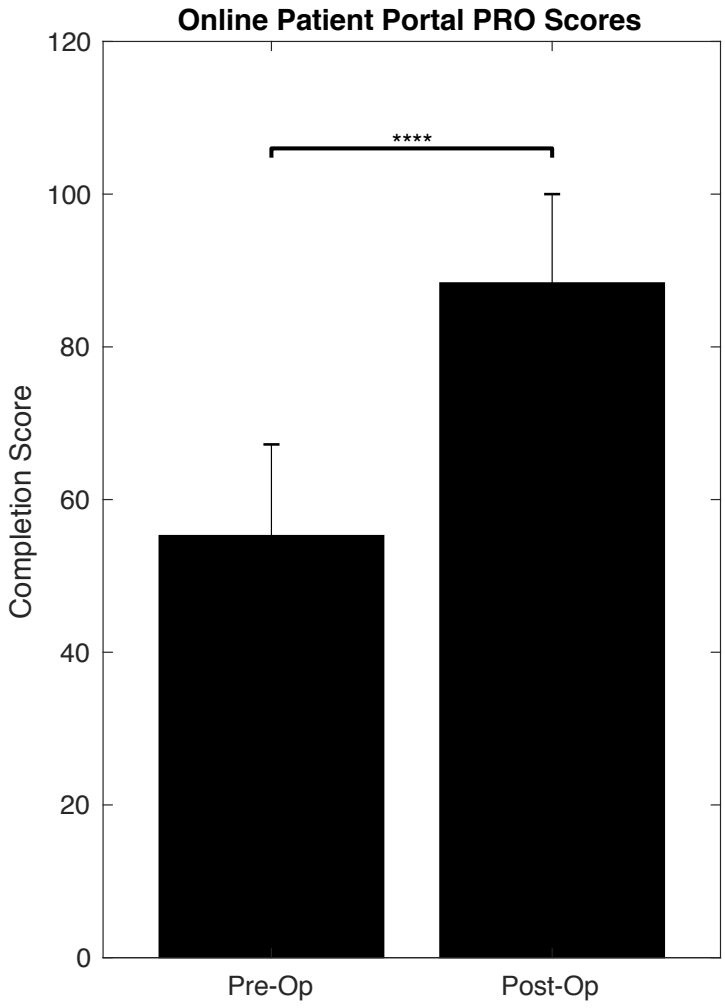

Figure 3: Comparison of HOOS-JR scores from patients who completed both pre- and postoperative survey through the online patient portal with EPRA. Error bars represent 1 standard deviation. $p<0.05$ = *, $p<0.01$ = **, $p<0.001$=***