Patient-Reported Outcome Measures should Guide Need for Specialty Referral in Atraumatic Shoulder and Knee Pain

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INTRODUCTION:

The use of patient-reported outcome measures (PROMs) in a clinical setting has continued to develop since their initial implementation as a research tool. The National Institute of Health's (NIH) Patient-Reported Outcome Measurement Information System (PROMIS) questionnaires have proven to be useful as an augment to monitoring clinical outcomes in an orthopaedic setting. However, there is minimal information regarding the use of PROMIS questionnaires as screening tools for referrals to specialty providers. The purpose of this study was to evaluate the relationship between PROMIS scores and the level of care and treatment provided by all providers across an orthopaedic sports medicine department.

METHODS:

This retrospective, cohort study received institutional review board approval prior to data collection. A total of 500 randomized charts were reviewed between January 1, 2023 and May 31, 2023. All patients 40 years or older who presented to any orthopaedic provider within the sports medicine department for atraumatic shoulder or knee pain met inclusion criteria. It is standard practice at this institution to collect PROMIS physical function (PROMIS-PF) and PROMIS pain interference (PROMIS-PI) scores for all patients presenting with lower extremity concerns and PROMIS upper extremity (PROMIS-UE) and PROMIS-PI for all patients presenting with upper extremity concerns.

Data collected included general demographic information, PROMIS scores, treatment plan at the initial clinic visit, and ICD-10 codes from that same visit. Treatment plans consisted of either conservative management (physical therapy referral, a home exercise program, and/or a trial of nonsteroidal anti-inflammatory medication), injections, advanced imaging, surgery, or referral to a different subspecialty. Statistical analysis was performed, first descriptively, and then using paired Student's t-tests to evaluate the relationship between PROMIS scores and the recommended treatment.

RESULTS:

A total of 341 patients met inclusion criteria. The average age of the cohort was 60.30. There were 145 patients who presented for shoulder concerns and 196 who presented for knee concerns. Average PROMIS-PF score was 40.99, average PROMIS-UE 36.54, and average PROMIS-PI 61.12. Providers recommended conservative treatment for 251 patients. Additional work-up was recommended for 215 patients – 115 received an injection, 165 had advanced imaging ordered, only 10 were indicated for surgery, and 19 were referred to a different subspecialty. The most common ICD-10 codes for patients presenting with knee concerns were M17.0 (39/196), M17.11 (42/196), and M17.12 (46/196) which are the diagnosis codes for "bilateral primary knee osteoarthritis" and "right/left knee osteoarthritis." The most common ICD-10 codes for patients presenting with shoulder concerns were M75.101 (15/145), M19.011 (13/145), and M75.01 (10/145) corresponding to "right shoulder rotator cuff tear," "right shoulder osteoarthritis," and "adhesive capsulitis right shoulder." When comparing those who were recommended conservative management only with those who required additional work-up or more invasive treatment, PROMIS-PF ($p < 0.001$), PROMIS-UE ($p = 0.013$), and PROMIS-PI ($p = 0.002$) were all found to be significantly associated.

DISCUSSION AND CONCLUSION:

In patients with atraumatic shoulder and knee pain, PROMIS scores are a useful prediction of management, with PROMIS scores indicating greater disability predicting the likelihood of further diagnostic work-up or more invasive treatment recommendations. PROMIS scores should be considered when ordering a referral for patients with atraumatic shoulder or knee pain to prevent unnecessary specialty service appointments which can be costly for both the patient and the health system.