

Readability Analysis of Commonly Cited Patient-Reported Outcome Measures in the Orthopaedic Joint Literature

Harjot Uppal, Nikhil Sahai, Kumar Gautam Sinha, Ki S Hwang, Andrew McGinniss, Arash Emami

INTRODUCTION: Patient-reported outcome measures (PROMs) are critical tools for evaluating surgical outcomes and capturing patient experiences related to pain, function, and quality of life. However, their effectiveness hinges on patients' ability to understand and accurately complete these instruments. The National Institutes of Health (NIH) and the American Medical Association (AMA) recommend that patient-facing materials be written at or below a sixth-grade reading level to ensure accessibility. This study evaluates the readability of PROMs frequently cited in the orthopaedic joint literature and assesses whether they comply with established health literacy guidelines.

METHODS: Thirty-five commonly cited PROMs in the orthopaedic joint literature were identified and analyzed. Two validated readability metrics were employed: the Flesch Reading Ease Score (FRES) and the Simple Measure of Gobbledygook (SMOG) Index. Readability scores were obtained using an online readability calculator. A FRES score of ≥ 80 and a SMOG Index of < 7 were used as benchmarks for sixth-grade reading level compliance, consistent with NIH and AMA recommendations.

RESULTS: The mean FRES across all PROMs was 67 (range: 21–90), and the mean SMOG Index was 8 (range: 6–12), suggesting an average reading level at the 8th to 9th grade. Only six PROMs (17%) met the readability thresholds on both FRES and SMOG metrics. Instruments such as the UCLA Activity Score, Modified Cincinnati Knee Rating System, Hamilton Depression Rating Scale, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Kujala Score, International Knee Documentation Committee (IKDC) score, and Tampa Scale of Kinesiophobia were among the least readable.

DISCUSSION AND CONCLUSION: The majority of PROMs in orthopaedic joint research exceed the recommended sixth-grade reading level, raising concerns about patient comprehension and the validity of self-reported data. There is a pressing need to simplify existing instruments or develop new, readability-conscious PROMs to align with national health literacy standards and improve data accuracy in orthopaedic outcomes research.