

Readability of Patient-Reported Outcome Measures Used in Pediatric Orthopedic Registries: Are We Meeting Health Literacy Standards?

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INTRODUCTION: Patient-reported outcome measures (PROMs) play a central role in pediatric orthopedic surgery by evaluating surgical effectiveness and capturing patient and caregiver perspectives on pain, function, and quality of life. However, for PROMs to be valid and useful, patients or their proxies must be able to comprehend and accurately complete them. The National Institutes of Health (NIH) and American Medical Association (AMA) recommend that health-related materials be written at or below a sixth-grade reading level to accommodate the general population's literacy skills. This study assesses whether PROMs commonly reported in pediatric orthopedic registries meet these readability standards.

METHODS: Fifty-nine PROMs used in pediatric orthopedic registries were identified and analyzed. Instruments were categorized as either validated or not validated for patients under 18 years of age. Each PROM was evaluated using two validated readability metrics: the Flesch Reading Ease Score (FRES) and the Simple Measure of Gobbledygook (SMOG) Index. Readability scores were obtained using a standardized online calculator. NIH and AMA thresholds were applied, with a FRES ≥ 80 or SMOG < 7 indicating acceptable sixth-grade readability.

RESULTS: The average readability across all PROMs was FRES 69 ± 14 and SMOG 8 ± 1 , reflecting an 8th- to 9th-grade reading level. Only four PROMs met both readability thresholds: the Hospital Anxiety and Depression Scale, Knee Society-Function, Children's Revised Impact of Event Scale, and Pediatric Quality of Life Inventory (PedsQL). Several widely used instruments—including the International Knee Documentation Committee (IKDC) score, Lower Extremity Functional Scale (LEFS), Single Assessment Numeric Evaluation (SANE), UCLA Activity Scale, and Kujala Score—were among the least readable. Although PedsQL satisfied both readability benchmarks, other frequently utilized pediatric PROMs such as the Pediatric Outcomes Data Collection Instrument (PODCI) and Patient-Reported Outcomes Measurement Information System (PROMIS) exceeded recommended reading levels.

DISCUSSION AND CONCLUSION: The majority of PROMs used in pediatric orthopedic surgery are written above the sixth-grade reading level, which may limit comprehension among pediatric patients and caregivers. This gap between recommended and actual readability may compromise data quality and hinder equitable participation in outcomes research. Efforts to simplify existing PROMs or develop new, health literacy-aligned tools are warranted to ensure accurate, inclusive patient-reported data collection in pediatric orthopedics.