Orthopaedic Foot and Ankle Patient Comprehension: An Analysis of Risk Factors for Limited Understanding

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**Introduction/Purpose:** Individuals with inadequate health literacy and limited comprehension may lack the skills needed to make informed decisions about their health. They are also at risk for inferior treatment outcomes and are more likely to express dissatisfaction with their care. Unfortunately, the Institute of Medicine has declared low health literacy a “silent epidemic”, as approximately 50% of Americans are afflicted.

Because foot and ankle disorders are common, often disabling, and at times utilize a variety of diagnostic and therapeutic modalities unfamiliar to patients, it is critical that we gain insight into patients’ foot and ankle comprehension. As such, we developed a novel questionnaire, the Foot and Ankle Literacy Survey (FALS), to evaluate this and the relationship between demographic factors and foot and ankle specific comprehension.

**Methods:** The 14 question FALS (Figure 1A) was developed by our study group and was distributed to a consecutive series of 206 English-speaking adults presenting for first visits, immediate pre-operative evaluations, or one of a number of post-operative or follow-up visits in the foot and ankle practices of our senior authors and the ambulatory care clinic of an academic, urban medical center. The questionnaire’s content was based on the following four categories: 1) terminology, 2) anatomy, 3) conditions and treatment, and 4) perioperative considerations. These categories were chosen following our group’s review of the most commonly emphasized themes within the American Orthopaedic Foot and Ankle Society’s internet-based patient education website, FootCareMD.org. Participants completed the FALS and a demographic survey. Both overall and categorical performance were evaluated as a function of demographic characteristics via Wilcoxon Rank Sum, Kruskal-Wallis and McNemar’s testing. The level of significance for all tests was set at $P < 0.05$. 
**Results:** Participants’ demographic characteristics are presented in Figure 1B. The mean FALS score was 9.88 ± 2.67 out of a possible 14 points. Participants performed significantly worse on the conditions and treatment subsection as compared to the others (P < 0.05). Significantly better FALS performance correlated with race (Caucasian, P < 0.001), higher levels of education (College degree or higher, P < 0.001), visit type (Pre-operative evaluation, P < 0.002), and a current or previous healthcare occupation (P=0.008) (Figure 1B). Additionally, of those patients who had previously seen a provider (orthopaedic surgeon, podiatrist, orthopaedic surgeon and podiatrist, other provider) for a foot and ankle complaint, a significantly higher score was observed in patients who saw an orthopaedic surgeon versus other types of providers. Age, gender and anatomic region did not correlate with FALS scores.

**Conclusion:** Patient comprehension of foot and ankle related terminology, anatomy, conditions, treatment, and perioperative issues is critical for successful encounters between orthopaedic foot and ankle surgeons and patients. This study has identified race, education, occupation, prior evaluation by an orthopaedic surgeon, and visit type as factors that significantly correlate with comprehension. With such knowledge, patient education can be focused on those most in need, an approach that we hope will improve health literacy and optimize outcomes. Admittedly, future research is pivotal and must identify the most effective means of educating patients and objectively evaluate the relationship between outcomes and patient comprehension.

![Figure 1(A): The FALS. Questions 1, 5, 7, and 13 evaluate each patient’s knowledge of terminology. Questions 3, 6, and 14 assess each patient’s knowledge of anatomy. Patients’ knowledge of conditions and treatment is evaluated in questions 2, 4, 8, and 9. Questions 10, 11, and 12 assess each patient’s familiarity with perioperative considerations (B): The demographic characteristics of study participants. Those variables highlighted in red represent demographic characteristics associated with statistically significant differences in FALS performance. Corresponding P values are listed.](image-url)