



Readability and Interpretability of a Spanish Lay-language Glossary of Musculoskeletal Terms

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Introduction

Radiology reports often contain complex, highly technical language, which can be difficult to understand for lay readers, especially for those with limited fluency in English. Spanish remains the leading non-English language in the United States, and as many as 66% of Hispanic Internet users have reported using the Internet to search for health information. Census Bureau 2017 data designates the Hispanic population as the largest ethnic or racial minority in the United States; they constitute 18.1% (58.9 million) of the population, of whom more than 9 million speak little to no English. Hispanic adults also have been shown to have lower average health literacy than any other racial/ethnic group in the United States, making it particularly important to address health literacy disparities in this patient population. We developed and measured the readability and interpretability of Spanish lay-language definitions of radiology terms which were most commonly found in knee MRI reports at a large academic medical center.

Hypothesis

We hypothesized that more than 75% of the PORTER Spanish lay-language glossary definitions would be readable at or below the 8th grade reading level, and that more than 75% would be rated as “easy” or “very easy” to understand on a Likert scale by fluent, Spanish-language proficient speakers.

Methods

The term names and definitions of 183 English-language radiology concepts from the pilot version of the PORTER (Patient-Oriented Radiology Reporter) glossary, which addressed knee MRI reports, were translated into Spanish by a fluent, native-speaker senior radiology resident. A subset of 30 concept definitions was selected at random. The definitions' readability scores were calculated using the Fernández Huerta (FH) readability formula, a Spanish-language adaptation of the Flesch Reading Ease formula. A total of 28 reviewers with fluent Spanish-language proficiency, recruited using Amazon's MTurk platform, assessed the definitions' readability on a 4-point Likert scale. Reviewers were asked to disclose their highest level of education.

Results

The definitions had a mean FH index of 76.5 ± 16.1 , (95% CI 70.7 to 82.2); 87% of definitions were readable at the 8th-grade reading level, and 60% at the 6th-grade reading level. The median FH value of 74.5 corresponded to the 6th-grade reading level. Reviewers' self-reported highest levels of education corresponded to 7.1% (2/28) High School Diploma, 64.3% (18/28) Bachelor's Degree, 21.4% (6/28) Master's Degree, and 7.1% (2/28) Doctorate Degree. On a Likert scale from 1 (very easy) to 4 (very difficult), reviewers' mean score was 1.51 ± 0.35 , (95% CI 1.38 to 1.63). Reviewers rated 93.3% (28/30) of definitions as 'very easy' or 'easy' to understand.

Conclusion

A lay-glossary of radiology reporting terms, translated into Spanish, was readable and interpretable by fluent Spanish speakers with varying levels of education. We plan to evaluate the glossary in a clinical setting.

Statement of Impact

Incorporating a Spanish lay-language glossary into online patient health portals may serve to address health literacy disparities, and help predominantly Spanish-speaking patients to better understand their radiology reports.

Keywords

reporting, patient-centered care, health equity, health literacy, musculoskeletal radiology