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Readability Levels of Speech-Language Pathology and Audiology Online Patient Education Materials in English and Spanish

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Materials in English and Spanish

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Abstract:
Clinicians have role in educating patients and their families about communication disorders. Therefore patient materials must have an appropriate level of readability. Studies are needed that investigate the readability of online patient education materials. This study investigated 30 online patient handouts in English and Spanish using several readability indices. The results indicated that few handouts met the recommended readability levels.

Introduction

The American Speech-Language and Hearing Association states that clinicians have a role in educating patients and their families about communication disorders (ASHA, 2016). Therefore, clinicians need to ensure that the patient and family education materials have an appropriate level of readability (Martinez, 2011). Readability is defined as "the ease of understanding and comprehension due to the style of writing" (Klare, 1963). It is suggested that written materials meet certain reading levels to ensure the general population is able to understand the text. Previous research has been conducted to evaluate the readability levels in English patient education materials and reports (e.g., Donaldson et al., 2004; Kahn & Pannbacker 2000; Pothier et al., 2008). However, few studies investigated the readability of education materials found online. Research indicates that individuals are increasingly using the internet for health information (Jacobs et al., 2017). Consequently, it is critical that online written text related to communication disorders is also at a proper level of understanding. Furthermore, with the changing demographics in clinical populations, it is important to also assess the readability levels in online educational materials provided in other languages. Spanish is the most commonly used language by the diverse patient population in the United States. 12.6% of U.S. residents aged five or above said they spoke Spanish at home (Rumbaut & Massey, 2013).

This study examined the readability level and other indices of online patient education materials related to various topics in speech-language pathology and audiology in English and Spanish. Research questions were: (1) Do English parent handouts meet the suggested guidelines for readability? (2) How do English handouts compare to Spanish handouts in relation to number of words, number of sentences, and average number of words per sentence?

Method:
Online patient education handouts were searched on Google and selected from different parent resource websites in English and Spanish. The selected 30 handouts were then sorted into categories: awareness, development, treatment, and disorders. There were a total of 22 English handouts and 8 Spanish handouts. There were 9 awareness handouts; 7 in English and 2 in Spanish. There were 8 development handouts; 6 in English and 2 in Spanish. There were 6 disorder handouts; 4 in English and 2 in Spanish. There were 7 treatment handouts; 5 in English and 2 in Spanish. The materials were written by speech-language pathologists, doctors, and

education professionals. Readability measures were calculated for each English handout using a readability formula online tool called, "Readability Test Tool" https://www.webfx.com/tools/readable/check.php.

The text from each handout was inserted into the online calculator and readability indices were generated, including: Flesch Kincaid reading level, the SMOG level, number of sentences, number of words, and the average number of words per sentence. The Flesch Kincaid reading level indicates the ease of the text and a higher score specifies an easier reading level. Scores of 60-100 is the appropriate range for readability. The SMOG level outputs the U.S. school grade level and the suggested level for readability is 6th grade or less. The data from these handouts were analyzed to determine if they met the suggested readability levels (Stossel et al., 2012). The means and standard deviations were calculated for each measure. This tool also generated the number of sentences, number of words, and the average number of words per sentence for the Spanish materials. This information that was gathered was then compared to the data from the English handouts. When comparing the numbers, it can be suggested that they shared the similar level of difficulty, due to the numbers being within range of each other.

Results:
Results indicate that overall the written handouts had a mean Flesch Reading Ease of 56.6 (SD = 15.4). This average does not fall within the recommended reading ease range of 60-100, which demonstrates that on average these written texts have a higher readability level. Within the awareness category, the average reading ease in English was 59.1 (SD=16.4). The development handouts generated an average of 61.5 (SD=5.58). Among the disorder category, the average reading ease was 50.4 (SD=19.3). The treatment handouts had an average of 52.3 (SD = 20.3). Only the texts in the development category met the suggested level on average.

The Flesch Kincaid Grade Level average for the English handouts combined, (M= 9.32, SD=3.44), did not meet the suggested parameters of the 6th to 8th grade range. The average grade level was 8.39 (SD= 2.62) for awareness. The development handouts had an average of 8.35 (SD = 1.28). The texts related to disorders had an average of 10.5 (SD= 3.11). The treatment handouts had a grade level average of 10.9 (SD= 5.94). Overall, the categories had a grade level average above the suggested 8th grade level. The SMOG index results for the English language handouts demonstrate that overall the handouts meet the appropriate level of a 6th grade index (M= 8.76, SD= 2.29).

A one-way ANOVA determined there were no significant differences in English and Spanish handouts between the number of words (p = .233) and sentences (p = .764), and average number of words per sentence (p = .658). The English texts had an average of 37.9 (SD= 15.97) sentences, whereas the Spanish handouts had an average of 39.9 (SD= 16.3) sentences. The average number of words in English was 545.1 (SD= 200.32) and Spanish handouts had an average of 653.6 (SD= 250.0). The average number of words per sentence in English was 15.9 (SD= 6.69) and 17.0 (SD= 2.97) in Spanish.

Discussion:

With easy access to instantaneous information, it is more common for individuals to seek further information on the Internet (Plantin & Daneback, 2009). It is important to consider the language complexity that is used in online resources that people with varying literacy levels may use to educate themselves (Plantin & Daneback, 2009). The results from the first research question demonstrated that varying online handouts within the speech-language pathology and audiology fields on average do not reach the recommended readability levels. The results demonstrate that the English and Spanish handouts on average, were similar in composition, which may indicate the Spanish handouts also do not reach recommended readability levels.

Language complexity used in the texts may impact the overall reading ease for patients and their families. Family members have an influence on a patient's progress and clinicians must consider the level of understanding for everyone involved. The authors of educational handouts should be aware of their targeted audience with varying education levels. Clinicians can use readability measures in practice when designing patient education materials.

Providing information in other languages with appropriate readability levels is vital to ensuring important information understandable to diverse populations. A limitation was that Spanish materials could not be analyzed with readability formulas. For future research, verified readability formulas may be useful to examine Spanish language handouts.

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