Improving the Quality, Objectivity, Readability, and Tone of Online Information about Hemorrhoids

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Background

- 1 in 20 Americans are diagnosed with symptomatic hemorrhoids at some stage in their lives
- In the past decade, the FDA labeled hemorrhoids as one of the "top-trending health issues search" in the United States
- Underdiagnosis of hemorrhoids is a common issue, resulting in a worsening knowledge gap created by poor patient awareness/hesitancy to access; this is further exacerbated by factors such as socioeconomic inequality

Objectives

- What is the **readability** of information on hemorrhoids?
- What is the prevalence and impact of **stigmatizing website language** about hemorrhoids?
- What are the **tones** conveyed to patients seeking details on hemorrhoids?
- What is the **overall quality of online information** about hemorrhoids?

Methods

180 websites surveyed → 124 met inclusion criteria (no duplicates or non-text websites) → Analysis of associations using four tools (see below)

1. Flesh Reading Ease Score & Kinkaid Grade Level
2. Stigmatizing Language Analysis
3. IBM Tone Analyzer
4. DISCERN Tool for Quality

Results

Prominent Tones	Level of Prominence
1. Fear	0.78+/- 0.08
2. Analytical	0.77 +/- 0.13
3. Tentative	0.71 +/- 0.11
4. Sadness	0.58 +/- 0.05
5. Confident	0.52 +/- 0.07

Figure 1: Tone Analysis of Online Information on Hemorrhoids
**Level of Prominence = 0.50/1 or greater is significant. Proportion of text that conveys each tone*
***Tones that were not prominent: openness, agreeableness, conscientiousness*

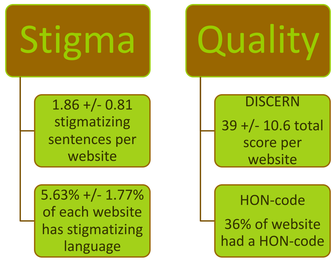


Figure 2: Quality and Stigma Analysis on Hemorrhoids
**DISCERN maximum score of quality = 80; Excellent is 63-75, Good is 51-62, Fair is 39-50, Poor is <39*
***HON-code is a certification given to websites with reliable health information*

Reading Ease Score
46 +/- 11 out of 100

Average Grade Level
9 +/- 1.8

Figure 3: Readability Analysis on Hemorrhoids
**Reading Ease Score: 30-60 = high school/college level, 60-70 = 8th grade level, 80-90 = 6th grade level*
***Scores are based on word complexity, sentence structure, and syllable count*

Conclusions

Online information on Hemorrhoids is:

1. Difficult to access and read for patients
2. Uses stigmatizing language, shown to adversely impact health care quality and perpetuate disparity
3. Has room for quality improvement
4. Conveys more negative tones

Future Directions

- Analyze patient-reported outcomes (PROs) of how changes in quality of information improve health literacy and overall patient experience
- Elucidate ways to change the tone, stigma, readability, and overall quality of information to people with Hemorrhoids
- Investigate other common colorectal ailments and diagnoses

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