



Evaluating the Quality and Readability of Thyroplasty Information on the Internet

Kimberly Ting, MD candidate, Amanda Hu, MD, FRCSC¹

¹Department of Otolaryngology – Head & Neck Surgery, Drexel University College of Medicine, Philadelphia, PA, USA

ABSTRACT

Objective: To assess the quality and readability of thyroplasty information available on the internet.

Study design: Cross-sectional study.

Methods: A Google search for “thyroplasty treatment” for conducted. The first fifty websites were analyzed using the DISCERN instrument, Flesch Ease of Reading Score (FRES), and Flesch Kincaid Grade Level (FKGL). DISCERN is a 16 item validated questionnaire used to assess the quality of written health information for the patient. FRES and FKGL are commonly used instruments to assess readability of written information. Websites were also divided into major versus minor, and patient targeted versus professional targeted for further analyses.

Results: Overall DISCERN score was 2.20 ± 0.60 . Overall FRES was 29.68 ± 16.64 . Overall FKGL was 13.07 ± 3.95 . There were significant differences between the patient targeted and professional targeted websites on FRES (43.80 ± 2.78 and 18.58 ± 9.04 , respectively) and FKGL (11.46 ± 3.36 and 14.33 ± 4.30 , respectively) with P-values of <0.00 and 0.01 , respectively. There were significant differences between the major and minor websites on DISCERN (2.35 ± 2.35 and 1.95 ± 0.61 , respectively), FRES (24.75 ± 14.61 and 37.71 ± 16.97 , respectively), and FKGL (14.19 ± 3.68 and 11.24 ± 3.77 , respectively) with P-values of 0.03 , 0.01 , and 0.01 , respectively.

Conclusion: Thyroplasty information available online is not of high quality. Furthermore, it is written at a level too difficult for the average American adult to read comfortably. Major websites have higher quality information, but were more difficult to read. Professional targeted websites were also more difficult to read than patient targeted websites.

CONTACT

Kimberly Ting, MD candidate
Department of Otolaryngology – Head & Neck Surgery
Drexel University College of Medicine
219 N Broad Street, 10th Floor
Philadelphia, PA, 19107
Phone: 516-244-1008
Email: kst37@drexel.edu

INTRODUCTION

Medialization thyroplasty is a procedure used to treat glottal insufficiency associated with unilateral vocal fold motion impairment, vocal fold bowing, and soft tissue deficits.¹ It is one of the most common surgeries performed by a laryngologist. In a survey of ~950 otolaryngologists over 25,000 thyroplasties were performed in the past 10 years.² During this procedure, an external approach is used to insert an alloplastic implant to close the glottis gap and improve the patient’s voice.¹ (figure 1)

Since the procedure is performed under local anesthesia, it is essential for the surgeon to keep patients calm and to manage their fear and anxiety. Thus, patient education is very important for this operation to ensure patient cooperation intra-operatively and to ensure a good outcome. This task can be more difficult if the patient is misinformed about the procedure.

In 2003, the Pew Research Center reported that 80% of internet users have searched online for health information.³ However, websites and other online resources can provide false and misleading information. These sources are seldom peer reviewed; therefore, quality is a major problem.⁴

Readability is another issue for medical information. Since the average American adult reads at an 8th grade level, the American Medical Association (AMA) and National Institutes of Health (NIH) recommend that health education materials should be written between a 4th – 6th grade level.^{5,6} However, this practice is rarely followed. Studies in various fields found that most of the medical literature is written at an exceedingly high reading level.⁷⁻¹¹

This goal of this study was to critically evaluate online thyroplasty information for quality and readability.

METHODS

A Google search using the term “thyroplasty treatment” was conducted on June 25, 2013. From this search, a list of the first 50 websites was compiled. Each website was designated as either a major or minor website. The websites were also designated as either targeting the professional or the patient. Advertisements, non-English, and duplicate websites were excluded.

The DISCERN instrument was used to analyze each website.¹² This is a validated, 16 item questionnaire used by a lay person to determine the quality of written health information. Each question was rated out of five.¹² The average of the 16 questions was used as an overall DISCERN score for each website. A higher score represents a higher quality website.

Figure 1: Thyroplasty Procedure



Otolaryngology Congress – online videos

METHODS (Continued)

The Flesch Ease of Reading Score (FRES) and Flesch Kincaid Grade Level (FKGL) are packaged into Microsoft Word and were used to evaluate readability. Both scores take into account the average number of syllables per word and the average number of words per sentence. The text from each website was copy and pasted into a Microsoft Word document.

The FRES generates a number between 0 and 100, where the lower the number, the more difficult the material is to read.¹³ The FKGL generates a grade level that reflects the difficulty of the material, where the higher the number, the more difficult the material is to read.¹³

Statistical analysis was conducted in Microsoft Excel. Averages, standard deviations, ranges, and 95% confidence intervals were calculated for the overall DISCERN, FRES, and FKGL scores. Two-tailed Student’s t tests were conducted to evaluate the differences in DISCERN, FRES, and FKGL scores between major and minor websites as well as between professional and patient targeted websites. An *a priori* probability level was set at 0.05 for significance.

RESULTS

Table 1: DISCERN, FRES, and FKGL scores for thyroplasty websites

Measurement Tool	
DISCERN	
Mean	2.20
Standard Deviation	0.60
Range	1.06-3.19
95% Confidence Interval	0.17
FRES	
Mean	29.68
Standard Deviation	16.64
Range	2.70 – 72.00
95% Confidence Interval	4.61
FKGL	
Mean	13.07
Standard Deviation	3.95
Range	6.00 – 16.00
95% Confidence Interval	1.09

Table 2: Professional versus patient oriented websites

	Patient oriented	Professional	P value
Number	48%	52%	n/a
DISCERN	2.02 ± 0.70	2.33 ± 0.48	0.08
FRES	43.80 ± 2.78	18.58 ± 9.04	$< 0.00^*$
FKGL	11.46 ± 3.36	14.33 ± 4.30	0.01^*

* Significant $p < 0.05$

Table 3: Major versus minor websites

	Major	Minor	P value
Number	62%	38%	n/a
DISCERN	2.35 ± 2.35	1.95 ± 0.61	0.03^*
FRES	24.75 ± 14.61	37.71 ± 16.97	0.01^*
FKGL	14.19 ± 3.68	11.24 ± 3.77	0.01^*

* Significant $p < 0.05$

DISCUSSION

This study is the first to systematically evaluate the quality and readability of thyroplasty information online. We found that thyroplasty information available online is of poor to moderate quality. The average FGKL score indicates that the reading level is slightly above the 13th grade, which is beyond the AMA recommended 4th to 6th grade level. This raises concerns about the information available to patients online; in content and readability. However, it is not unexpected given that researchers have consistently found information online ranging from very poor to good quality and difficult to very difficult in readability.¹⁴⁻¹⁶

When we separated the patient oriented from the professional oriented websites, we found that the patient oriented websites were easier to read; however, the material was still written above the recommended sixth grade level. The DISCERN score for the patient oriented material was lower than the professional oriented material, but not significantly. These results indicate that while the material intended for patients are significantly easier to read, they may sacrifice some quality.

When we divided the websites into major and minor sources, we found that the major websites had higher DISCERN scores, indicating that they are of better quality. The major websites also had a lower FRES and higher FKGL scores, indicating that they are more difficult to read. It is not surprising that major websites such as those from academic institutions are of better quality and that, in order to present the better material, use more sophisticated language. Still, both major and minor websites are written at a level above the recommended sixth grade reading level.

CONCLUSIONS

Thyroplasty information available online is of suboptimal quality. Furthermore, it is written at a level too difficult for the average American adult to read comfortably. Major websites have higher quality information, but were more difficult to read. Professional targeted websites were also more difficult to read than patient targeted websites.

REFERENCES

1. Fakhry C, Flint PW, Cummings CW. Medialization thyroplasty. In Cummings CW ed. Otolaryngology Head & Neck Surgery, 4th ed. Philadelphia, Pa.: Elsevier Mosby, 2005: 904-911.
2. Young VN, Zullo TG, Rosen CA. Analysis of Laryngeal Framework Surgery: 10-year follow-up to a national survey. The Laryngoscope. 2010;120:1602-1608.
3. Health Online 2013 | Pew Research Center’s Internet & American Life Project. January 2013. Accessed June 26, 2013. Available at: <http://www.pewinternet.org/Reports/2013/Health-online.aspx>.
4. Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the Internet: Caveat lector et viewer—let the reader and viewer beware. Generations. 1997;21:53-55.
5. Weiss BD. Health Literacy: A manual for Clinicians. Chicago, IL: American Medical Association, American Medical Foundation; 2003.
6. How to write easy to read health materials: MedlinePlus. February 2013. Accessed June 27, 2013. Available at: <http://www.nlm.nih.gov/medlineplus/etr.html>.
7. Cherla DV, Sanghvi S, Choudhry OJ, Liu JK, Eloy JA. Readability assessment of Internet-based patient education materials related to endoscopic sinus surgery. The Laryngoscope. 2012;122:1649-1654.
8. Patel CR, Cherla DV, Sanghvi S, Baredes S, Eloy JA. Readability assessment of online thyroid surgery patient education materials. Head Neck. 2012;doi: 10.1002/hed.23157 [Epub ahead of print]
9. Roshan A, Agarwal S, England RJA. Role of information available over the internet: what are the parents to children undergoing tonsillectomy likely to find? Head and Neck. 2008;90:601-605.
10. Langille M, Veldhuyzen van Zanten S, Shanavaz S, Massoud E. Systematic evaluation of obstructive sleep apnea websites on the internet. Journal of Otolaryngology-Head and Neck Surgery. 2012;41:265-272.
11. Eloy JA, Li S, Kasabwala K et al. Readability assessment of patient education materials on major otolaryngology association websites. Otolaryngol Head Neck Surg. 2012;147:848-854.
12. Charnock D. The DISCERN handbook: quality criteria for consumer health information on treatment choices. Abingdon: Radcliffe Medical, 1998.
13. Flesch R. A New Readability Yardstick. Journal of Applied Psychology. 1948;32:221-233.
14. Patel CR, Cherla DV, Sanghvi S, Baredes S, Eloy JA. Readability assessment of online thyroid surgery patient education materials. Head Neck. 2012;doi: 10.1002/hed.23157 [Epub ahead of print]
15. Fackrell K, Hoare DJ, Smith S, McCormack A, Deborah HA. An evaluation of the content and quality of tinnitus information on websites preferred by General Practitioners. BMC Medical Informatics and Decision Making. 2012;12:70-83.
16. Muthukumarasamy S, Osmani Z, Sharpe A, England RJA. Quality of information available on the World Wide Web for patients undergoing thyroidectomy: review. The Journal of Laryngology and Otology. 2012;126:116-119.